



# THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Edited by  
Joseph Grinnell

Harry S. Swarth  
Associate Editor

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W. Lee Chambers  
Business Managers

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Fig. 1. SURF-BIRDS: A BLOWN WING  
FROM A PHOTOGRAPH, COPYRIGHT, 1913, BY W. L. DAWSON

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## A GLIMPSE OF SURF-BIRDS

By WILLIAM LEON DAWSON

WITH SIX PHOTOS BY THE AUTHOR

WHAT we do *not* know about the Surf-bird (*Aphriza virgata*) would fill one of those dummy rows (entitled "The Complete Works of Xanadu") in a Wernicke bookcase. Disguise it as modestly as you will, if you have ever seen one you contrive to let your friends know of it the first day, and you fall to wondering the day after whether that Surf-bird story wouldn't bear repeating. Anyhow, I'd had my luck last fall, when three of a flock of five fell before our impulsive guns—better luck than I deserved, for while Howell exulted (really, you know, he yelled like a Comanche), I sat on the wet sand and hated myself for having used a gun instead of the camera—an unpardonable lapse into barbarism!

But coals of fire were heaped upon my head when on the 3rd of May last I thrust it cautiously over the crest of the beach bluff at La Patera, near Santa Barbara, California, and saw on a nearby reef, not a mere handful, but a large company of mingled shags and Surf-birds. The cormorants rose hurriedly and after them the Aphrizids, but the latter settled again while we accomplished a long detour which brought us up, panting, behind a line of rocks substantially on a level with our prizes. I snapped hurriedly at 150 feet, then set out more carefully to make a series of photographic approaches. First, I crept on hands and knees across the upper beach to a jutting rock which offered a little shelter; then advanced by slow stages in a direct line. What matter though the sand was wet and plastered here and there with blobs of crude oil! Were they not Surf-birds! Ever and again I snapped. At the sixty-foot range a jealous wave engulfed me as I squatted Turk-fashion upon the sands. No matter. It would not do to put the cause to hazard, by rising. "Snap" went the latch, and "roar" went the shut-

ter till the first relay of plates, carried in the game pocket of an old hunting coat, was exhausted.

Retracing my steps as cautiously as I had come, I secured another batch of



Fig. 2. SURF-BIRDS: THE FIRST EXPOSURE

plates and returned to the fray. This time I succeeded in reaching the reef itself and in lessening the distance to some forty feet—a score of Surf-birds at forty feet! They rose at length, for there were timorous souls among them, but they



Fig. 3. SURF-BIRDS IN FLIGHT; ONLY THE BLACK TURNSTONE REMAINS

From a photograph, copyright, 1913, by W. L. Dawson

returned or ever I had reached the base of supplies. After a hasty cold lunch of bread-and-butter, omelette and cake, all sugared impartially with fine sand, I resumed the quest, pausing only to note that the Surf-birds were themselves busily

engaged in feeding upon the white barnacles which covered the reef. These seemed to form their exclusive diet for the time; and it was interesting to see a bird get a good grip on a reluctant cirriped, then brace and haul him out by main force. It was yeoman service, and many a bill was smeared with bug juice, not to mention "biramous cirri" and other delicate crustacean apparatus.



Fig. 4. SURF-BIRDS: A SANDPIPER POSE  
From a photograph, copyright, 1913, by W. L. Dawson

There were about twenty of the birds, twenty-three to be exact, and one Black Turnstone kept with them most of the time, although he might have found plenty of his own kind not far away. Once the Surf-birds deserted him and left him trembling on the rock; but I was unprepared to utilize the superb pose which his lonely plight presented a moment later, and he made off with startled cries.



Fig. 5. SURF-BIRDS: SHIFTING  
From a photograph, copyright, 1913, by W. L. Dawson

As for the Surf-birds, as often as they were dislodged they retired to a strip of sand a few rods away and fell to gleaning like pipers.

On my last sally from the base of supplies I was determined to press advantage home. The gulls, who would fain have occupied the reef themselves, shrieked warnings when they saw me advancing upon the unsophisticated Surf

birds. The latter gave attention indeed, but would not heed the repeated warnings. My advances had the effect of bringing all the flock together, whereas otherwise they would have scattered over the entire ledge of, say, a hundred feet length. Now and again the flock shifted, but always they came back, alighting at the extreme tip of the reef where the waves frequently bandied them. For the most part they fed silently, but as often as I made some unusual demonstration or as often as the wave swept about them, a murmur of complaint arose. The flock came to attention, or a few shifted position, if the water was actually too deep. But the moment danger was over, work was resumed upon the barnacles.

My last exposure, the last of twenty-one plates, was made at a distance of eighteen feet, and at that range only half of the flock would go on the plate. The exposure (f. 16, 1-140) was perfectly timed, and it marked, I am proud to confess, the most thrilling moment of a ten-year experience in bird photography.



Fig. 6. SURF-BIRDS: THE PARTING SHOT  
From a photograph, copyright, 1913, by W. L. Dawson

## CONCEALING AND REVEALING COLORATION OF ANIMALS\*

By JUNIUS HENDERSON

CONCEALMENT is only one factor of safety and not always the most important factor. There are numerous others, such as the sharp hearing, keen scent and speed of deer and antelopes, the weapons and strength of elephants and tigers, the protective armor of turtles and armadillos, the shells of clams and oysters, the spines of sea urchins and porcupines, the offensive or irritative secretions or stench of certain invertebrates, which render concealment comparatively unimportant in many cases.

Natural selection means the survival, not of those forms which have a single advantageous character, but of those whose combined characters as a whole best fit them for existence in their natural environment, surrounded by their natural enemies. Hence the very popular supposition that under the doctrine of natural selection all animals must be concealingly colored, is unwarranted in theory and unsupported by the facts. If a given species be varying in the direction of concealing coloration and in no other direction, naturally those forms, or mutants, or whatever we wish to call them, whose colors are in closest harmony, would be

\* Abstract of an address before the University of Colorado Scientific Society.

likely to survive, and the others to perish. Another species may be varying in the direction of revealing coloration, but at the same time developing some other element of safety which far outweighs the disadvantage of revealing coloration, and thus would survive. Most naturalists who have studied the two in the field will probably agree that the crow, whose color under most circumstances cannot be considered at all concealing, is, because of its intelligence, alertness and activity, quite as capable of escaping its natural enemies, armed only with natural weapons, as is the ptarmigan, which affords one of the best examples of concealing coloration.

The law of compensation runs all through nature, animate as well as inanimate, and cannot be ignored by naturalists. In the natural course of things, a more or less revealingly colored animal would be expected to develop its alertness, speed or some other factor of safety, to a greater extent than its better-concealed neighbor. In fact, this seems to be the actual result in certain familiar cases, though not at all in other instances, so far as we may judge. There is some reason for the supposition that reliance upon concealment in many cases enables an enemy to approach very closely before escape is attempted. Thus concealing coloration, reacting upon mental and physical activity, may possibly sometimes be an actual disadvantage, if its concealing effect be known to its possessor, of which we cannot very well be certain until we can persuade the animals to tell us.

It is possible, if not probable, that many other causes besides the need of concealment contribute to the coloration of animals. Mr. Beebe's experiments upon the direct effect of moisture, dryness, heat, cold, diet, etc., upon animal colors are well known and enlightening, whatever the final conclusions may be. Some other facts bearing upon this phase of the problem, generally known to professional zoologists, are often ignored, and may not be so well known to amateurs. For example: (a) The general possession of dark skins by tropical animals, which is not confined to tropical human beings and which is possibly not due merely to the direct blackening of the skin by the sun ("tanning"), but to pigmentation for protection of the living tissues from the destructive action of intense light, excessive heat, or both. (b) The difference between different colors in their power to radiate heat, which may require animals of different habitat to be differently colored without reference to concealment. Thus such colors would be protective, yet not concealing. "Protection" is a broader term than "concealment," and the two should not be used synonymously. (c) The difficulties found in attempting to introduce white-skinned animals (swine) into certain regions, which may be due to the deleterious effect of intense light. (d) The difference in the color of domestic horses under different climatic conditions, possibly due to temperature or light, or moisture, a matter now under investigation. Professor Chas. F. Woodruff has recently discussed this subject (*Science*, n. s., xxxv, April 12, 1912, pp. 591-593). The recent change of color of the linnet introduced into Hawaii may be due to some such cause.

If no animal were in need of concealment, it is probable that species would still differ in color and color pattern. Among the smaller animals many species differ minutely in color and color pattern, yet so slightly that the differences are scarcely discernible, except by direct comparison, with specimens in hand. These differences can hardly be for concealment. Sometimes colors are the result of refraction of light due to physical structure, as in pearls, opals and iridescent feathers of birds. Sometimes they are the result of chemical composition, as in rubies, emeralds, sandstones, limestones, etc. In the cases just mentioned, except

perhaps feathers, the colors serve no known useful purpose, so far as the inanimate possessor is concerned. Many vegetable colors are surely not for concealment, though some may be for protection from light or temperature, and in case of flowers, possibly for the purpose of attracting insects, which would mean revealing, not concealing, coloration. Many leaves are countershaded, but not for concealment, surely. Internal organs, muscles and tendons of animals differ in color, but certainly not for concealment from enemies. Are not the beautiful yellow and black abdominal colors of the ring-necked snakes (*Diadophis, spp.*), under almost all circumstances, concealed, not concealing? Many heavy shelled mollusks which lie buried in mud and have practically no enemies except parasites and boring mollusks, and certainly have no need of concealment, are strongly lined with different colors. The species differ in color, surely not for concealment, as in many cases the colors are most emphatically not concealing when the animal lies on the beach sands unburied. Compare also the inside of the pearly fresh-water mussels, some species with chocolate-colored nacre, some rose-colored and some pure white, surely none for concealment. Innumerable other examples will occur to naturalists.

If no animal were in need of concealment, if coloration were purely haphazard, it is possible or even likely that the majority of them would be in a large measure concealingly colored. There are more neutral or dull colors, than bright and conspicuous colors. While bright colors do not always mean conspicuousness, yet a very brightly colored animal is quite apt to be conspicuous under a great many circumstances, while a dull-colored one is quite apt to escape observation in almost any habitat, if it remains quiet.

In the varying colors, lights, shades, and details of form of a forest, a small animal of almost any color or color pattern easily escapes observation while quiet, not because it is concealingly colored, but because it is only one in the great mass of detail, and the eye sees but a few out of the thousands of details. A black crow, a white heron and a scarlet ibis, all fairly large birds, standing side by side, could escape observation under many circumstances. Furthermore, in forest and brush patches, animals are almost always partly concealed or their outlines broken up by intervening twigs, leaves, etc. Even then it is noticeable that many birds which are good examples of concealing coloration take the precaution to keep a tree or bush between them and their enemies, a fact probably familiar to every ornithologist.

It has been argued that if concealing coloration is quite general, then we are warranted in assuming that it is universal, and that the apparent exceptions are exceptions simply because we do not know all the facts. That argument is quite unsound, and the acceptance of the doctrine of evolution, recently offered as an illustration supporting the argument, is not only not strictly parallel, but not in any way or in the slightest degree parallel. Naturalists will generally agree that the American bison and muskox in their native haunts are not concealingly colored and have no need for concealment from natural enemies armed only with nature's weapons. They are vegetarians and well able to protect themselves, except as against the artificial weapons of the human race, especially the death-dealing rifles of modern civilization. The same is true of many other animals. If this be admitted, then it follows that even though three-fourths of all animals are to an astonishing degree concealingly colored, the remaining fourth might be revealingly colored, because fully able to take care of themselves and perpetuate their kind, because of greater fecundity, intelligence, activity, strength, or other protective character or device.

That there are almost innumerable cases of concealing coloration, in varying degrees of perfection, is so generally conceded that it needs no argument or citation of instances; and some species are so colored as to easily escape observation in such a great variety of situations as to make quite unnecessary the Messrs. Thayers' elaborate, interesting, and in the main perhaps correct, explanation of how different types of broken patterns are suited to different types of background. Difference of opinion is found only when we come to discuss certain definite species or to decide how nearly universal the phenomenon is.

That there are many cases of clearly revealing coloration (such as the bison above mentioned) is usually admitted, even by the most radical advocates of the other side of the problem, though often in their generalizations they use language which plainly contradicts their admissions of exceptions. Among animals which would apparently be as much benefitted by concealment as others, there are such numerous unexplained inconsistencies as may well cause one to hesitate about wholesale declarations. Many of the explanations offered utterly fail to explain. One must wonder if the assertion that white herons are concealingly colored because they are seen by their prey or their enemies against a white sky is at all satisfactory to anyone familiar with the range, habits and habitats of this and other herons. Is it not more often seen in solid white, outlined against a deep blue, leaden or gray sky, or a dark bank, or a solid bank of foliage? At any rate, before the white heron was exterminated over most of its former range, it was found, at least in many places, in the same habitat, and, so far as one may judge, with practically the same feeding habits, as the blue and green herons. Such instances as this, and they are quite numerous, should not be lightly passed over. It does not help matters to say that if we knew more of the intimate life relations of these animals we would find all to be concealingly colored, because that is a mere assertion.

Another large class of inconsistencies involves those species of which the male is radically different in color from the female. Forced explanations are not conducive to scientific progress. Taking the redwing as a much discussed example, it has been asserted that the male is concealingly colored because it is seen by its enemy, the hawk, from above, against the dark mud and dark foliage of its swampy habitat, and that the lighter wing-patch would be easily mistaken for a flower. Yet over a large part of its range (including, of course, the various slightly differentiated species and subspecies) during a large part of the year it finds no dark mud or dark foliage as a background. Species should be considered in relation to their whole range and to all other species and other elements of their environment. Even more difficult are those species of which the male is much like the female during part of the year, but wears more conspicuous colors during the nesting season. The theory that the conspicuous color is assumed in order that the male may attract the female is hardly satisfactory. The theory that the male is so colored in order to attract enemies from the nest may possibly have some weight, especially in view of the habit developed by other species of leading enemies from the nest by fluttering along the ground as if wounded. Such species as the bobolink and lark bunting, the males of which, more conspicuously colored, rise into the air and then sing as they glide downward as if purposely to attract attention to their alighting-place, afford a chance for observations of value on this point, if they have not been made, by noting in a great number of cases whether the bird glides down toward the nest or away from the nest. An objection to this theory is that many of the conspicuously colored males assist in feeding the young when hatched, and some, at least, habitually feed the female

on the nest. If the purpose of the difference between male and female is to lead enemies from the nest it would be a protective device, but certainly not a case of concealing coloration, so far as the male is concerned. The doctrines of warning colors, and mimicry, besides the lack of convincing evidence of their validity, appear to admit that all color patterns are not concealing.

Another set of inconsistencies includes the croaks of frogs, the songs of birds and the cries of mammals. Why should nature provide concealing colors for a pika, a woodchuck, or a prairie-dog, and then endow it with an instinct which induces it to attract the attention of every enemy which approaches? Everyone who has studied nature in the field must know that a large percentage of birds and mammals which are observed, either by man or by lower animals, would escape observation, if, to use the vernacular, they "had sense enough to keep their mouths shut" and remain motionless. These cries, croaks and songs are not for the purpose of leading enemies away from nests or young, because they are not confined to one sex or to the breeding season.

To take care of the seeming exceptions to the concealing coloration doctrine it has been boldly asserted that "all patterns and colors, upon all animals whatsoever, except such as live in the dark, or are neither predatory nor preyed upon, are, when seen against the background against which their enemy (or prey) would see them at the critical moment, inexpressibly perfect pictures of the background, and therefore obliteratively colored." The circumstances of the critical moments of most species vary so enormously, and such moments occur in varying circumstances so often with some species, that it is difficult to conceive how anyone at all familiar with nature could indulge in such a statement. It is quite on a level with another assertion of the same author, that "one may read on an animal's coat the main facts of his habits and habitat, without ever seeing him in his home." As the crow's color does not change, does it display "a perfect picture of the background" when the critical moment occurs in a cornfield, or in a cottonwood tree, or on the rock crags of the Rabbit Ears, or when the ground is bare, or when it is white with snow? If it be suggested that it is when on the nest, the obvious answer is that the nesting sites vary greatly, and surely that suggestion could not apply to the same query concerning the male of the redwing, or any species whose male takes no part in nest building or brooding. A moment's thought must flood the mind of every zoologist with specific objections to the assertions above quoted.

The critical moment theory has been particularly applied to those animals which have white rump patches or white tails, or both. I have been familiar with the prong-horn antelope since 1883 and with the rabbits for a much longer period, and have never seen either dog or coyote puzzled for a second by the fact that the posterior white parts were thrown against a sky and so obliterated. During the past two seasons I have had more opportunities to watch dogs pursue cottontails and jackrabbits than ever before, and they followed unerringly, often at close range, up hill where the rabbits were almost constantly against the sky. In case of the antelope, it is, so far as my observation goes, usually the flashing of the white patch that attracts the attention of its enemy, whether man or beast. It is inconceivable that nature has provided it with such a distinctive advertising character, to attract the attention of all the coyotes in the vicinity, merely in order that it might sometimes be seen against a white sky and thus throw the enemy off the trail, even if we can presume that the animal's enemies pursue their prey entirely by sight. My own observation is that most of our forest rabbits are not seen usually against a sky background, or even a forest background with

patches of sky showing through, but much more often against a solid dark background of canyon wall, river bank or solid green foliage. Of course this proves nothing, unless it coincides with the observations of others made with this particular question in mind. Even in a level, treeless region, during the past season, I could not see that the low bounds of a cottontail ever carried its rump high enough to bring it to the sky line, from the standpoint of a coyote, except for a fraction of a second at a time. Furthermore, the chief enemies of the rabbit, in many localities, are not mammals, but large birds of prey, which surely do not often see their quarry against white skies. This is also true of the white-tailed prairie-dogs of the intermountain region of Colorado. Whatever their purpose, that such white posterior markings are oblitative from the standpoint of the possessor's enemies is altogether too doubtful to be accepted without thorough testing on many species. Mr. Thayer's photographs do not show the animals in the position in which they would usually be seen by their enemies at the "critical moment," in my judgment.

Thayer's theory of countershading seems correct as an optical principle, but needs to be studied from many angles before acceptance as a part of the concealing coloration theory. Many animals which are rendered quite indistinct in the middle of the day, when the light comes from above, are not so indistinct earlier and later in the day. Thayer himself admits this, apparently, in the case of the jacanas. I have found it true with the cottontails of the western plains during the past summer. As many countershaded animals are in hiding during the hours when the countershading would be most effective for concealment, and moving about when it is least effective and in some instances even disadvantageous, it is well to look for some other explanation of the phenomenon and not to hastily assume that its purpose is concealment.

Thayer's raptive design theory is possibly one of the most important ones he has advanced. In certain environments, at any rate, the breaking up of the outlines of animals in the way suggested is a most effective method of obliteration.

Nearly all the discussion of concealing coloration has assumed that all animals have the same powers of vision as man, see things just as man does, and at least one prominent author has expressly declared this to be true. Nothing could be farther from the probability. All men, even, have not equal visual powers. Aside from individual color blindness, there is strong evidence indicating that it is a racial character of some primitive peoples (*Science*, n. s., xxii, 1905, p. 680), thus reviving the old theory that in the development of color perception the colors at the long-wave end of the spectrum were first perceived, and that only a few animals have yet reached the higher colors. Birds probably have color vision, though very little is yet known of its extent or universality. Experiments under proper control up to the present time indicate that many of the mammals have not color vision, but only the power of distinguishing between brightness and dullness. Such experiments, to be of any value whatever, are very difficult. There are reasons for the belief that amphibians and reptiles have only motion vision, which, if true, would nullify the numerous statements about such animals being unable to see their enemies on account of concealing coloration. It is quite certain that all animals are more apt to see any object in motion than a motionless one. It is also doubtful whether any animal except the primates has binocular vision, a matter of very great importance. It is generally believed to represent the difference between an ordinary flat photograph and a stereoscopic view, which brings the scene out into sharp relief. Anyhow, binocular vision is one of the important factors in the perception of solidity, rotundity, etc. Whether the

lower animals have developed some other faculties as substitutes for color vision and binocular vision is not yet determined. Experimentation, properly controlled, along these lines, is difficult, but if the matter of concealing coloration is ever to be settled, naturalists must begin to pay more attention to the work of the experimental psychologists, testing the results of their experiments, wherever possible, by field observations. Until there is some reason for thinking that coloration is necessary for the concealment of animals from their enemies, or that coloration would be effectual for that purpose, the doctrine, in view of all the apparent exceptions and inconsistencies, stands on rather insecure ground. There is no reason for assuming that animals in their natural habitat appear to other animals as they appear to man.

Finally, the camera does not represent animals in their habitat as they appear to man, both on account of the lack of color and relief, and great reduction of scale in order to show habitat. Stereoscopic views would correct the latter, if it were economically practical to publish them, but color photography has not yet developed far enough for general use in the field. It is fairly safe to say that no photograph has yet been published which exhibited the animal as clearly as it was visible to the human eye. Some authors have frankly acknowledged this in discussing concealing coloration, but others have said the opposite. Especially reprehensible is the indulgence in taking photographs out of focus in order to obscure outlines and patterns, ignoring scale and perspective in paintings and drawings, and placing objects in front of one figure to obscure it in order to show that it is concealingly colored, and omitting the objects from before another figure to show that it is not, all of which have been practiced in advocacy of the concealing coloration doctrine.

## SWALLOWS AND BED-BUGS

By EDWARD R. WARREN

IN MY paper in the May-June CONDOR, 1912, entitled "Some North-central Colorado Bird Notes," I referred to the belief that swallows harbor bed-bugs as ridiculous; and now I have to confess that possibly I did not know as much as I thought I did, a not uncommon failing with us all. Some time after the paper was published, W. Leon Dawson in a very courteous letter, called my attention to the fact that he had found Cliff Swallows' nests badly infested with bed-bugs, in one case so much so that the colony had been deserted. He reported this in "The Birds of Washington," page 333. This started me to looking into the matter, something I had not done before, and as it would seem that not very many are posted on the subject, and in fact but little definite has been published that I have been able to find, I have thought it worth while to write up what little I have been able to learn about the matter, together with a few observations of my own, in the hope that it may be the means of bringing out further information. Certainly ornithologists should do their part in ascertaining whether or not swallows are guilty of bringing such disagreeable pests into human habitations.

I found that a bug (*Acanthia hirundinis*), belonging to the same genus as the true bed-bug (*Acanthia lectularia*), is parasitic on swallows, pigeons, chickens, and bats. It should perhaps be stated that the French authority, L. Gedoelst, places it in another genus because of certain structural differences,

calling it *Oeciacus hirundinis*. On writing Dr. L. O. Howard, Chief of the Bureau of Entomology, Department of Agriculture, for information, he gave me a reference to a record by Otto Lugger, State Entomologist of Minnesota, and published in the Sixth Annual Report of the Entomologist of the State Experiment Station of the University of Minnesota, 1900, page 52. This is as follows:

"Bugs, very similar to bed bugs, attack pigeons, chickens, swallows and bats. Those found in the nests of swallows not infrequently reach the inside of houses against which these beneficial birds have built their clay nests. Such bugs very closely resemble the genuine bed-bugs, yet are different when studied in detail; they are much smaller, darker, and cannot exist for any length of time away from their proper home, the nest of the swallow, where they are sometimes exceedingly numerous. \* \* \*

"Since the above account was written [this having been copied from a previous report], another species of true bed-bug was found in a large school building in the western part of the state [Minnesota]. Here these insects became very annoying during winter, and especially near the warm steam-pipes; later they invaded all the rooms. It is a strange fact that an insect, usually dormant at that time, and certainly not active during the day, should so change its habits as to become a veritable trouble in midwinter, annoying students and teachers in broad daylight. This species is much smaller, and resembles the one found in swallow nests so closely that it may be identical with it."

It will be noted that this quotation does not say positively that these insects were the swallow bed-bug, nor is it stated if there had been swallows' nests on school building. However that may be, it is evident that the insects were not the common bed-bug.

Geddoelst, the author previously referred to, says concerning the swallow bug: "Lives in the nests of swallows; may enter houses and attack man."\*

As for myself, the only evidence I can offer is of a negative character. In the summer of 1902 there were about thirty Cliff Swallows' nests under the eaves of a one-story log house on the ranch of a friend near Crested Butte, Colorado. I frequently spent the night at the ranch, sleeping in this house, and on the same side as where the nests were, and was never disturbed by any insects. Another man slept there all the time, and never made any complaints. The cabin was built of dry aspen logs, full of cracks and crevices which would have harbored the parasites if they had been about. About this same time I occupied office and sleeping rooms in the town of Crested Butte in a building on which Cliff Swallows had nested, and had no trouble there.

A lady living on another ranch near Crested Butte told me of having a few years previously destroyed the Cliff Swallows' nests on the ranch house because of the dirt they made about the house, and regretted having to do it for the reason that the birds had been very useful in keeping down the mosquitos, which were a pest in the irrigating season. She spoke of the birds having begun to return and build about the barns, and expressed her pleasure at that. I think that if she had thought the swallows guilty of having brought pests into her house she would have spoken of it to me.

Of course it is not impossible that these colonies may not have been troubled with the parasite, and even that it does not occur at that altitude, 9,000 feet, but—its relative does. Not knowing of them at the time I did not look for them.

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\*Synopsis de Parasitologie de l'Homme et des Animaux Domestiques. Par. L. Geddoelst. Bruxelles. 1911.

but I did take down, after the builders had left, some of the nests from the cabin for examination and photography, and noted no parasites of any sort.

Most animal parasites will not live for any length of time on any host other than the natural one, though some have several hosts, and a few seem quite indifferent in such matters. What the case is with the swallow bed-bug I do not know. I would suggest to my readers that in such cases as may come to their notice they secure specimens of the bugs and submit them to an expert for identification. Certainly the matter will bear further investigation. Incidentally I may remark that it is worth while to collect any parasites one may find on any animal and turn them over to some one interested in these things. I have made it a point lately to always have a few vials containing weak alcohol with me when collecting, and putting into them the parasites which often immediately show on a dead animal, with a label to show from what species they were taken.

I must express my appreciation of Mr. Dawson's courtesy in writing me about the matter instead of correcting me in the CONDOR, which he would have been justified in doing under the circumstances as known to him. As it happens, in a way we were both right and both wrong, so we should both be satisfied.

## NOTES ON SOME FRESNO COUNTY BIRDS

By JOHN G. TYLER

### *Recurvirostra americana*. Avocet.

**I**N PURSUING ornithological studies the bird student is often led to wonder what strange economy of Nature causes certain species to choose an environment that, from a human standpoint, would seem unsuited to a creature of gentle disposition and attractive plumage.

Several miles southwest of Caruthers, Fresno County, California, are a number of shallow ponds of greater or less extent, according to the amount of winter rainfall, and all but two of them possessed of a freakish tendency to become entirely dry at times, only to fill up again without warning. Surrounded by salt-grass knolls, their borders entirely devoid of vegetation of any kind, these ponds are not the most picturesque places in the valley, especially in view of the fact that the water is alkaline and in summer often becomes stagnant. A more foul-smelling, unattractive place could hardly be found, yet these ponds are resorted to each spring by a company of Avocets that remains throughout the summer. It is evidently a matter of choice rather than necessity with these handsome waders, too, for there are numerous overflowed pastures and permanent ponds in other parts of the valley, each of which claims its nesting colony of Stilts every spring; but while a few of the latter may oftentimes be found with their larger cousins, yet I have never found the Avocets elsewhere than in the immediate vicinity of the most sterile sinks.

When the water in these ponds is subjected to the rays of the summer sun, a slimy, jelly-like substance appears around the edges and attracts myriads of flies, which often form an unbroken black band four feet or more in width and completely encircling the ponds. Is it not possible that these flies are one of the staple articles of food with the big waders? Possibly this is the solution of their attachment to these uninviting ponds. A similar assemblage of flies has been previously noted by Walter K. Fisher (CONDOR, IV, 1902, p. 9) as occurring at Mono Lake.

*Lophortyx californica vallicola*. Valley Quail.

The quail began nesting early this year (1912) but for some reason not a single brood of young was seen until the fifteenth day of July, when a mother quail was observed making frantic efforts to lead an inquisitive ornithologist away from her tiny chicks, out of the nest but a few hours. From that date all through the following month, broods of various sizes were noted daily, and as late as the first week in September many of the young birds seen were not over half grown. There is no reason to doubt that these were all the result of second sets of eggs, but I am at a loss to account for the entire absence of young quail during May and June.

That many sets of eggs were deposited during April and May was evidenced by the finding of several nests. On April 20 a nest was seen in a vineyard, built in a clump of pepper grass two feet from the base of a vine. There were eighteen eggs in which incubation was probably at least begun. It was a most unfortunate choice of location, and it is extremely unlikely that the nest survived the cross plowing of the vineyard, which probably took place soon afterward.

Another nest, accidentally discovered on May 12, and also holding eighteen eggs, was several inches under water. The nest was built in a tussock of wire grass just at the edge of a canal, and a sudden rise of water had completely inundated it. The eggs when found had been soaking for some time, as they were entirely unmarked on the upper side, only that portion of the shell that rested on the nest bottom showing traces of the coloring pigment. As it is rather a difficult task to remove the coloring from a heavily incubated quail's egg I have assumed that this set was fresh, or nearly so, at the time it was abandoned. Again, on May 16, a nest with ten fresh eggs was exposed when a young man hoeing weeds in a vineyard uprooted a thick cluster of green fox-tail grass.

While the foregoing records might seem to offer a solution to the question of why the first broods of quail failed to appear, yet it is not reasonable to conclude that a similar disaster overtook all of the early nests, as the percentage of losses from unfortunate selection of nesting sites was probably no greater than in former years. Fortunately our quail are wonderfully prolific, and the number of birds found in the vineyards when the shooting season opened was not noticeably less than in past seasons.

*Asio wilsonianus*. Long-eared Owl.

Probably on account of the absence of timber in the vicinity of Fresno, this species is seldom seen. The San Joaquin River bottom affords concealment and hunting grounds for a few individuals; but in twelve years residence in this county I had never found a nest of the Long-eared Owl until April 30 of this year. On that date I was making my way along an old slough which, on account of the slight rainfall of the previous winter, was carrying no water. In former years I had encountered there many patches of rank-growing nettles, which afforded ideal nesting sites for numerous colonies of Tri-colored Blackbirds. Several clumps of willow bushes, with a few larger trees, were scattered along the banks, and on this particular occasion I had hopes of finding a pair of Swainson Hawks nesting in one of the larger willows.

With a bird crank's curiosity I was peering into all the more dense portions of the screen of foliage, when I noticed a suspicious-looking bunch of feathers sitting upright on a dead branch not far away. A second glance showed that I had found a Long-eared Owl. I was convinced that its nest was near

by, and so it proved, for scarce sixty feet distant, in a small isolated tree, I came upon a bundle of sticks placed at the junction of a large branch, in a somewhat exposed position, and only ten feet from the ground. As the tree was on low ground I could almost see into the nest by standing on the bank of the slough. When I looked into it and saw six eggs, I felt that one more species was to be added to my collection of local sets; but a more careful examination showed that two of the eggs were on the point of hatching, one already having a small hole chipped in one side; so sliding from the tree I made a hasty departure leaving the owls to return to their soon-to-be family.

Yes! I have read instructions as to satisfactory methods of preparing for the cabinet eggs in which incubation is complete, but the collecting spirit has never become sufficiently developed to tempt me to pilfer a nest in that condition. Next season, perhaps, I may happen along that way a couple of weeks earlier, and should a good set of eggs be my reward I shall prize them more highly when I remember my previous acquaintance with the Long-eared Owls.

***Speotyto cunicularia hypogaea.* Burrowing Owl.**

Wishing to acquire a little more information as to the nidification of these queer little owls, I opened four nesting burrows on April 30, 1912; the first of these held six fresh eggs, with one of the birds on the nest. She proved a savage captive, lying on her back with bill snapping viciously and claws extended while she squealed and scolded in the most approved owl fashion. Not wishing to injure or unnecessarily frighten her I soon released her. After a short undulating flight she perched on the mound of a burrow not far away, where she remained for some time. One of the other nests held large young birds, nearly feathered, while the other two burrows each claimed families of half-grown young. The number of each brood was not ascertained as I did not care to enlarge the burrows to such an extent as to allow the entrance of any large animal.

Around the mounds at the entrances to these excavations were miscellaneous collections of scraps, showing the kind of food that had been brought to the young owlets. A dried up section of some small snake, the legs of a frog, tufts of fur and bones of mice, were identified, together with large numbers of wings and shells of beetles. These, and other large insects, it seemed, had formed the greater part of the food of newly hatched birds, the diet of meat gradually becoming more common as the young grew stronger. From the standpoint of the agriculturist a pair of these interesting little owls must prove a valuable asset to any farm.

***Lanius ludovicianus gambeli.* California Shrike.**

Last spring, while passing a willow tree growing near a canal at the roadside, I noticed a shrike perched on the topmost twig. As this is usually an indication of a nest, I stopped to investigate, and soon located the framework of a nest that had probably been commenced only a day or two before my visit. Three weeks later (March 23, 1912) I found myself in the same locality, and decided to look up my shrikes; but before reaching the place I saw another nest in the drooping branches of a tree not over one hundred yards from the site of the first one mentioned. Seeing the tail of the sitting bird over the edge of the nest, I supposed my shrikes had moved for some reason; so, after the owner had flitted from her nest and skimmed along to a convenient weed stalk, I examined the contents and was rewarded with eight nearly fresh eggs. As this was

the second set of that number that I had ever found, they were added to my collection. Going on to where the first nest had been located I expected to see the tree deserted, but was surprised to find that while the nest had never been completed another had been built on a different branch, but a few feet away and a little higher up. The bird was on in this case also, and I climbed up about fifteen feet to find seven eggs in the deeply cupped nest. Less than a quarter of a mile away in a thick bush, four feet from the ground, was another nest of this species with four fresh eggs. Surely this must have been a very attractive place for grasshoppers, small lizards, beetles and horned toads, for I had never before known three pairs of shrikes to nest in such a small area.

***Planesticus migratorius propinquus*. Western Robin.**

Having read from time to time of several sets of five eggs of the robin having been found, I thought it might be of interest to record a set of that number which I came across four years ago. On May 22, 1908, while driving along a mountain road near Ockenden, Fresno County, California, I noticed a nearly completed robin's nest situated nine feet from the ground, in a niche in an old burnt stub standing not four feet from the edge of the narrow road. The nest was composed largely of gray-green tree moss, and the mud cup was lined with fine, dry grass stems. Coming down the mountain seven days later, I had forgotten the nest on the stub until I happened to see the tail of a sitting bird on the nest. She had already begun to incubate a set of five eggs that were altogether normal in size, shape, and coloration.

During the week that was spent in the mountains I examined about thirty nests of this species, containing either eggs or young, and sets of three were more common than four; so that five eggs in one nest was quite exceptional, for that year at least.

BIRD NOTES FROM THE COAST OF NORTHERN  
LOWER CALIFORNIA

By GEORGE WILLETT

APRIL 4, 1912, the writer left San Diego on the launch "Flier," George H. Child, captain, for a short cruise along the coast of Northern Lower California and to some of the adjacent islands. Among those composing the party were W. J. McCloskey of the Los Angeles County Museum of History, Science and Art, C. B. Linton of the Cooper Club, and H. C. Lowe, conchologist. We reached Ensenada April 5, and, after procuring the necessary papers from the authorities there, started down the coast. Our trip lasted twenty-two days, ending at San Diego, April 26. We were very unfortunate as to weather, only one or two days of the entire time being pleasant. The inclemency of the elements, of course, retarded us to a great extent in our ornithological pursuits. We managed, however, to secure quite a number of specimens and notes.

More or less collecting was done at each of the following points on the dates given. Todos Santos Island, sixty-five miles south of San Diego, five hours on April 25; Hole in the Wall, ten miles southeast of Todos Santos, afternoon of April 5; Santo Tomas Anchorage, eighty miles south of San Diego, April 6; Colnett Bay, one hundred and thirty miles south of San Diego, April 7 and 8; San Quentin Bay, one hundred and seventy-five miles south of San

Diego, April 12; San Martin Island, one hundred and sixty-five miles south of San Diego, April 9, 10, 11 and 23; San Geronimo Island, two hundred and twenty miles south of San Diego, April 13 and 14; and Cerros Island (south end), three hundred and sixty miles south of San Diego, April 15 to 21, inclusive.

The following is a list of species noted on the trip. All notes and records of specimens taken are provided by the writer personally unless otherwise stated.

***Aechmophorus occidentalis***. Western Grebe. Common in flocks at Colnett Bay, April 7 and 8. None observed there on our return April 24.

***Colymbus nigricollis californicus***. Eared Grebe. Several seen and one taken at Colnett, April 8.

***Gavia immer***. Loon. One bird in fine spring plumage noted in San Diego Bay April 4; another seen in the same locality April 26.

***Gavia pacifica***. Pacific Loon. Common at all points south to San Quentin Bay. Many seen migrating northward. Much less plentiful on our return journey.

***Ptychoramphus aleuticus***. Cassin Auklet. Breeding in small numbers on Todos Santos and Cerros, and in an immense colony on San Geronimo. It was hardly possible to walk anywhere on the latter island without sinking knee deep into auklet burrows. In rocky portions of the island the birds were nesting in crevices in the rocks. Most of the nests contained incubated eggs on April 14, but a few fresh eggs and two downy young were found. Of thirty incubating birds taken on the afternoon of the 14th, eighteen were females and twelve were males.

***Brachyramphus hypoleucus***. Xantus Murrelet. Fairly common on the ocean, but not found breeding although particularly sought for.

***Larus occidentalis***. Western Gull. Abundant everywhere we went. Not yet nesting.

***Larus argentatus***. Herring Gull. ***Larus californicus***. California Gull. One bird of each species seen in San Diego Bay April 4.

***Larus heermanni***. Heermann Gull. One seen at Santo Tomas April 7, and another at San Martin Island, April 9. Several seen in San Quentin Bay April 12, and at San Geronimo Island April 14. Not plentiful, the majority evidently having passed southward to the breeding grounds previous to this date.

***Larus philadelphia***. Bonaparte Gull. Seen in San Diego Bay April 4.

***Sterna maxima***. Royal Tern. Abundant everywhere we went. Adult birds in fine plumage. Although we took specimens in several different localities, hoping to find *Sterna elegans*, we were unsuccessful.

***Fulmarus glacialis glupischa***. Pacific Fulmar. One bird in light plumage seen outside the entrance to San Diego Bay April 26; one found dead on the beach at San Geronimo Island April 14.

***Puffinus opisthomelas***. Black-vented Shearwater. Abundant on the ocean until about April 15; much less plentiful after that date, probably having passed southward to their breeding grounds.

***Puffinus griseus***. Sooty Shearwater. Common on the ocean during the entire trip.

***Phalacrocorax dilophus albociliatus***. Farallon Cormorant. Common as far south as we went. Nest-building on Todos Santos Island April 25. A great part of San Martin Island was covered with nests of this species. They were built on the tops of low bushes and none were occupied April 10-11.

***Phalacrocorax penicillatus***. Brandt Cormorant. Abundant on all the islands

visited. Not so plentiful as the last on Todos Santos and San Martin, but much more plentiful on San Geronimo and Cerros. A few fresh eggs noted on San Geronimo April 13.

**Phalacrocorax pelagicus resplendens.** Baird Cormorant. Fairly common on the ocean as far south as Cape Colnett, where several were seen April 7.

**Pelecanus californicus.** California Brown Pelican. Plentiful everywhere we went. Apparently not yet nesting. Old nests were seen on Todos Santos and San Martin islands. On the former island last year's egg shells were scattered everywhere, evidently the work of rats, with which the island is infested.

**Mergus serrator.** Red-breasted Merganser. Fairly common at San Geronimo Island April 14; one adult male in high plumage taken. One bird seen at the south end of Cerros Island April 17.

**Chaulelasmus streperus.** Gadwall. Adult female taken at Colnett April 8.

**Mareca americana.** Baldpate. One taken at Colnett April 8.

**Querquedula cyanoptera.** Cinnamon Teal. Common at Colnett April 7-8. One taken at Santo Tomas April 6.

**Spatula clypeata.** Shoveller. Common at Colnett April 7-8. On the morning of April 13, thousands of ducks were seen flying from the San Quentin marshes out to sea. They were so far away, however, that it was impossible to identify the different species.

**Marila affinis.** Lesser Scaup Duck. Common at San Diego Bay April 4, and at San Martin Island April 10 to 12, and 23.

**Oidemia perspicillata.** Surf Scoter. Common at all times on the ocean; adult males predominating.

**Erismatura jamaicensis.** Ruddy Duck. One taken at Colnett April 8.

**Branta nigricans.** Black Brant. Common in small flocks at Colnett Bay April 7; at San Geronimo Island April 13-14, and at Cerros Island April 16-17. An immature bird taken at the southern end of Cerros April 17 was much emaciated, and upon dissection was found to be literally alive with large tape worms.

**Dendrocygna bicolor.** Fulvous Tree-duck. Several seen at Colnett April 7-8.

**Ardea herodias.** Great Blue Heron. Seen occasionally during the entire trip. A small nesting colony noted on San Martin Island. April 9 the birds were at the nests but no eggs had been laid.

**Porzana carolina.** Sora. One taken and several others seen at Colnett April 8.

**Fulica americana.** Coot. Noted at Colnett April 8.

**Phalaropus fulicarius.** Red Phalarope. One bird seen near Todos Santos Island April 25.

**Gallinago delicata.** Wilson Snipe. Noted by McCloskey at Colnett April 8.

**Pisobia minutilla.** Least Sandpiper. Common at Colnett, and on San Martin and San Geronimo islands.

**Limosa fedoa.** Marbled Godwit. One taken by Linton at San Martin Island April 10.

**Totanus melanoleucus.** Greater Yellow-legs. One taken by Child at Colnett April 7.

**Heteractitis incanus.** Wandering Tattler. Fairly plentiful everywhere on rocky shores. Several specimens taken at Cerros Island April 17-18 were in fine spring plumage.

*Actitis macularius*. Spotted Sandpiper. Seen occasionally on rocky shores. One specimen taken at Cerros Island April 18.

*Numenius hudsonicus*. Hudsonian Curlew. Common at San Geronimo Island April 13-14, and at China Point (about thirty miles south of Todos Santos Island), April 25.

*Squatarola squatarola*. Black-bellied Plover. Common at San Geronimo Island April 13-14.

*AEgialitis nivosa*. Snowy Plover. Common at San Geronimo Island April 13-14.

*Aphriza virgata*. Surf-bird. Female taken by Linton at San Geronimo Island April 13; another female taken by Child the same day.

*Arenaria interpres morinella*. Ruddy Turnstone. Common at San Geronimo Island April 13-14. Several specimens taken.

*Arenaria melanocephala*. Black Turnstone. Abundant everywhere on rocky shores. Many in almost full summer plumage.

*Haematopus frazari*. Frazar Oyster-catcher. Fairly common on Cerros Island; one taken by Linton on San Geronimo.

*Haematopus bachmani*. Black Oyster-catcher. Common on all the islands visited; also seen on the rocky shores of the mainland. On Cerros Island there are very few oyster-catchers typical of either this or the last species, most of them showing hybridization between the two forms. A male and female, evidently paired, were taken April 16. The male was almost typical *frazari* and the female almost typical *bachmani*.

*Lophortyx californica vallicola*. Valley Quail. Common on the mainland.

*Zenaidura macroura marginella*. Western Mourning Dove. Seen at Colnett.

*Cathartes aura septentrionalis*. Turkey Vulture. Common on the mainland, and on San Martin and Cerros islands.

*Circus hudsonius*. Marsh Hawk. A pair seen at Colnett, and another pair on San Martin Island.

*Haliaeetus leucocephalus leucocephalus*. Bald Eagle. One or two birds seen at north end of Cerros Island.

*Falco peregrinus anatum*. Duck Hawk. Male taken on San Martin Island April 10. Male, female and three badly incubated eggs taken on San Geronimo Island April 13. Several birds seen on Cerros Island.

*Falco sparverius phalaena*. Desert Sparrow Hawk. Seen on the mainland.

*Pandion haliaetus carolinensis*. American Osprey. One pair seen on San Geronimo; breeding abundantly on San Martin and Cerros. A few sets were secured, but nearly all the nests examined contained young. Some young birds found April 9 were at least six weeks old, so the eggs must have been laid in January. An addled egg, taken from a nest which also contained two young, measures 2.86 x 1.93, by far the largest Osprey's egg I have ever seen. At the time of our visit the Ospreys seemed to be feeding almost altogether on flying fish, which were very plentiful around the islands.

*Aluco pratincola*. Barn Owl. Seen by McCloskey at Colnett, and by Child on San Martin Island.

*Speotyto cunicularia hypogaea*. Burrowing Owl. One seen by Lowe on San Geronimo Island April 14.

*Ceryle alcyon*. Belted Kingfisher. Male taken by Child at Santo Tomas, and female of a pair seen, taken by the writer at San Martin Island April 23. One bird seen at San Geronimo Island April 14, and another at the south end of Cerros Island April 17.

**Aeronautes melanoleucus.** White-throated Swift. Several seen at Todos Santos Island April 25.

**Calypte costae.** Costa Hummingbird. Common on the mainland; fairly common on Todos Santos and Cerros islands.

**Calypte anna.** Anna Hummingbird. Common on the mainland.

**Tyrannus vociferans.** Cassin Kingbird. Common on the mainland.

**Sayornis sayus.** Say Phoebe. Common on the mainland; also seen on San Geronimo and Cerros islands.

**Sayornis nigricans.** Black Phoebe. Seen at Colnett.

**Myiochanes richardsoni richardsoni.** Western Wood Pewee. One seen at Colnett April 8.

**Empidonax difficilis difficilis.** Western Flycatcher. One taken at Hole in the Wall April 5.

**Corvus corax sinuatus.** American Raven. Common on the mainland and on all the islands visited. A nest examined on San Geronimo Island April 14 contained newly hatched young. An adult bird taken on Cerros Island measures: length, 25.38 inches; wing, 17.38 inches.

**Agelaius phoeniceus neutralis.** San Diego Red-wing. Common at Colnett.

**Sturnella neglecta.** Western Meadowlark. Common at Colnett.

**Carpodacus mexicanus frontalis.** House Finch. Common on the mainland.

**Carpodacus mexicanus elementis.** San Clemente House Finch. Common on Todos Santos Island. No specimens taken. I have placed the Todos Santos Island bird under this form on the authority of the A. O. U. *Check-List*, I found no house finches on any of the other islands visited.

**Astragalinus psaltria hesperophilus.** Green-backed Goldfinch. Fairly common on Todos Santos Island April 25.

**Passerculus beldingi.** Belding Sparrow. Abundant in Colnett marshes.

**Zonotrichia leucophrys gambeli.** Gambel Sparrow. Abundant at Colnett April 7-8; common on San Martin Island April 9-11, and on Todos Santos Island April 25.

**Spizella passerina arizonae.** Western Chipping Sparrow. Fairly common on north end of Cerros Island.

**Amphispiza bilineata deserticola.** Desert Sparrow. Rather common in low bushes on north end of Cerros Island. An adult male taken April 21 proved to be a breeding bird.

**Amphispiza belli.** Bell Sparrow. Abundant on San Martin Island. Beginning to breed April 23.

**Aimophila ruficeps ruficeps.** Rufous-crowned Sparrow. This bird was more plentiful in the hills near Point Banda, below Ensenada, than I have ever seen it anywhere else. It was not noted in any other locality.

**Melospiza melodia cooperi.** San Diego Song Sparrow. Common at Colnett.

**Pipilo crissalis senicula.** Anthony Towhee. Common at Colnett.

**Passerina amoena.** Lazuli Bunting. One seen on Todos Santos Island April 25; male found dead by McCloskey at Colnett April 8.

**Piranga ludoviciana.** Western Tanager. Several tanagers seen on Cerros Island were probably of this species. They were very wild and no specimens were obtained.

**Petrochelidon lunifrons lunifrons.** Cliff Swallow. Common at Colnett.

**Hirundo erythrogastra.** Barn Swallow. Several seen at San Martin Island April 23.

**Iridoprocne bicolor.** Tree Swallow. One seen at Colnett April 8.

**Tachycineta thalassina lepida.** Northern Violet-green Swallow. Common at Colnett April 8.

**Vermivora celata celata.** Orange-crowned Warbler. Male taken at Hole in the Wall April 5. Others, apparently of the same species, were seen at the same time and place.

**Vermivora celata lutescens.** Lutescent Warbler. Fairly common at Colnett April 8. One specimen taken.

**Vermivora celata sordida.** Dusky Warbler. Fairly common on Todos Santos Island April 25.

**Dendroica auduboni.** Audubon Warbler. Common at Colnett April 7-8.

**Geothlypis trichas arizela.** Pacific Yellow-throat. Common at Colnett April 7-8.

**Anthus rubescens.** Pipit. Fairly common at Colnett April 8.

**Mimus polyglottos leucopterus.** Western Mockingbird. Common at Colnett, and fairly common at the north end of Cerros Island. In the latter locality they were very wild and we were unable to secure any specimens.

**Toxostoma redivivum.** California Thrasher. Common at Colnett.

**Salpinctes obsoletus obsoletus.** Rock Wren. Common on the mainland and on all the islands except San Geronimo. Not noted on the latter island.

**Psaltriparus minimus californicus.** California Bush-Tit.

**Chamaea fasciata henshawi.** Pallid Wren-Tit.

**Poliophtila caerulea obscura.** Western Gnatcatcher. The above three species were common on the mainland.

**Poliophtila californica.** Black-tailed Gnatcatcher. Abundant on the mainland.

THE OUTLOOK FOR CONSERVING THE BAND-TAILED PIGEON  
AS A GAME BIRD OF CALIFORNIA

By JOSEPH GRINNELL

WITH ONE MAP

(Contribution from the Museum of Vertebrate Zoology of the University of California)

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INTRODUCTION

Up to the present time, the Band-tailed Pigeon has been taken practically no account of in the game laws of California. This may have been due to two things: to its lesser importance as a game bird, as compared with quail and ducks for which California is justly famed, and to its appearance sporadically in large numbers, which has given the impression that it was in no danger of depletion.

The unusual slaughter of pigeons in the southern coast counties in the late winter of 1911-12 (see Chambers, 1912, p. 108) has brought forcibly to the attention of ornithologists, the possibility of the extermination of our western wild pigeon. We would certainly be forever blamed if we took no steps to prevent a repetition of the deplorably thoughtless treatment which was given the now extinct Passenger Pigeon of the eastern states.

For the purpose of ascertaining the facts in regard to the standing of the Band-tailed Pigeon, and with a view of offering appropriate recommendations at the coming legislature, the writer was asked by the Secretary of the State Fish and Game Commission to compile all data obtainable in regard to the Band-tailed Pigeon, both as it exists now, and as it has occurred in the past.

This work was undertaken at the Museum of Vertebrate Zoology, with the assistance of Miss Margaret W. Wythe, and the results are presented in the following pages. Correspondence with many students of birds throughout the state produced surprisingly little definite information, and the literature of western ornithology proved scarcely more resourceful. We have, of course, exercised discrimination in getting at the real facts, as contrasted with general and hearsay statements.

It is believed that enough evidence is here given to demonstrate beyond any doubt the urgent necessity of the immediate passage of laws giving protection to the Band-tailed Pigeon. Otherwise the bird is plainly doomed to take its place in the growing list of North American animals which have totally disappeared as a result of man's misuse of natural resources.

## GENERAL DISTRIBUTION OF THE BAND-TAILED PIGEON

There has been more or less confusion in the popular mind as to the distinctness of the Passenger Pigeon from the Band-tailed Pigeon. Both have been called Wild Pigeon. The two species, however, are very different, and as far as known the ranges of the two nowhere overlapped. The Passenger Pigeon (*Ectopistes migratorius*) was restricted to the region east of the east base of the Rocky Mountains; the Band-tailed Pigeon (*Columba fasciata*) ranges from, and including, the Rocky Mountains westward to the Pacific Coast, though not of course continuously over the intervening desert areas.

Recorded localities of occurrence of the Band-tailed Pigeon extend as far east as Boulder County, Colorado, and western Texas, south into Mexico, and north to Vancouver Island and the adjacent mainland of British Columbia. Relatively few of these localities, however, are breeding places; many are of sporadic occurrences. So that the area outlined must not for a moment be thought of as supporting a pigeon population throughout its extent, either continuously or regularly.

In a general way it may be said that at the north and at high altitudes the species is only a summer visitant. To be more explicit, the Band-tailed Pigeon summers in the Transition life zone, whether this be in the northern part of its range or at the south. In the latter case the high altitudes of the mountain ranges resorted to, result in the same temperature conditions as at lower levels to the northward.

In winter the pigeon migrates to more southerly latitudes, or to lower altitudes, as the conditions make it necessary in order to reach a bearable winter climate. Although recorded south along the Mexican Plateau, it is believed that practically all the birds breeding to the north of the Mexican boundary winter within the United States, concentrating at that season in the extreme southwest.

From the data at hand pertaining to distribution, it seems probable that the pigeons of the Rocky Mountain region do not cross in migration to the Pacific slope, but winter with the locally bred contingent in suitable places near the Mexican line, in Arizona and New Mexico. In parallel fashion those pigeons appearing in the valleys of California in winter come from the mountains adjacent and from the Pacific Coast district to the north, in Oregon, Washington and British Columbia.

## LOCAL DISTRIBUTION

The following facts bear upon the question of the source of at least part of the pigeons wintering in the valleys of California. The species occurs at Blaine, Washington (near the British Columbia boundary), from May 5 to September 15 (Dawson, 1909, p. 555); in southern Washington west of the Cascades it is present from May 15 to September (Coues, 1874, p. 386); and at the mouth of the Columbia River it is present from May to October (Bendire, 1892, p. 122). In Washington County, Oregon, it is common in summer (Anthony, in Bendire, 1892, p. 123); at Dayton, Yamhill County, Oregon, the pigeon arrives April 20 and leaves the last of November (Hadley, in Woodcock, 1902, p. 28); at Corvallis, Benton County, Oregon, it occurs from the first of April until the last of September (Woodcock, 1902, p. 28).

From the above data it will be seen that north of the northern boundary of California the Band-tailed Pigeon is wholly migratory. It seems inevitable that this northern bred contingent moves south *into California* for the winter season. In other words the entire pigeon population of the Pacific Coast region concen-

trates in winter in west-central and southern California. It becomes apparent, therefore, that as far as the whole Pacific Coast region is concerned, California alone is in winter responsible for the existence of the species.

The accompanying map (fig. 7) serves to show both the summer and winter distribution of the Band-tailed Pigeon within the state. Because of the small scale, record stations for the two seasons in some cases appear to be almost or quite coincident. But the rule may be laid down without hesitation, that this bird

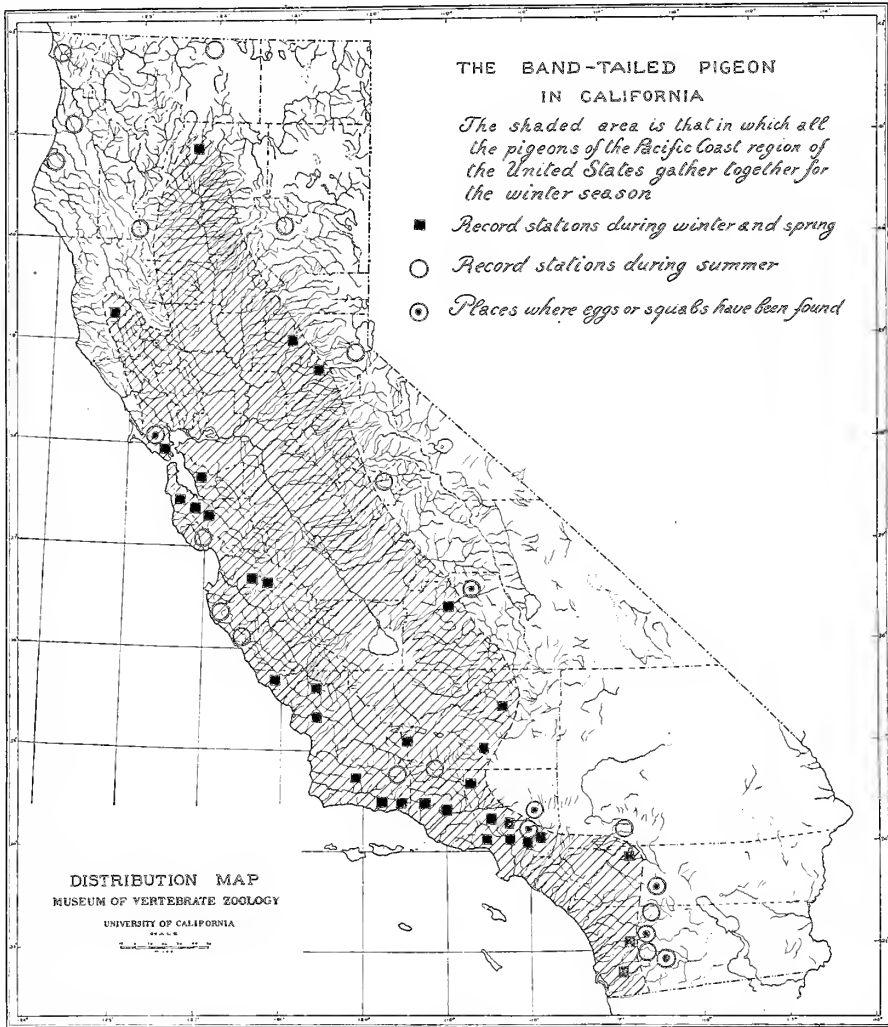


Fig. 7

summers in the Transition zone and winters in the Upper Sonoran. Within our State there is thus a vertical migration coupled with a winter influx of birds summing to the north.

There is nothing to show that the individuals nesting locally on the mountains, and the northern migrants, flock separately, though this is possible. Neither is there any evidence to show that birds hatched in a particular mountain range always return to the same vicinity the following year, this being the case with some kinds of birds. On the contrary, our data does show, as far as it goes, that

local breeding places at least may not be fixed from year to year. There is considerable shifting, this irregularity being concurrent with varying food supply.

To illustrate: in case there has been in a certain mountain range an abundant acorn crop, sufficient to last throughout the winter, any flock of pigeons foraging there would be likely to linger on until the advent of the usual season of nesting. These pigeons would thus be more likely to remain there and breed that particular season, zonal conditions being favorable, than to move off to another mountain range. Such an explanation would appear to account for the vacillating numbers of breeding birds in the various more or less isolated mountain ranges of southern California.

#### RELATIVE NUMBERS, PAST AND PRESENT

It has been found practically impossible to estimate relative numbers of pigeons now as compared with any former period. This difficulty results from the variability from year to year in the degree of concentration of the birds in limited areas, and further from the sporadic distribution at any season. Reports of observers, therefore, no matter how explicit they may appear, cannot be used fairly in such inductions.

In fact, no single statement previous to that of Chambers (1912, p. 108) would lead to the inference that pigeons were ever more numerous than last year. But taking the above considerations into account, no significance can be given to such isolated statements. The literature examined gives no exact data; but we can, nevertheless, be morally certain that there has been a very great decrease in the numbers of pigeons since the early days of western settlement, when game of all sorts was so abundant as to arouse but little comment.

#### FOOD OF THE PIGEON

As already intimated, the amount of food available to the pigeon appears to be the main controlling factor in distribution, aside from zonal considerations. This is more particularly true in winter, though probably to some extent in summer also. As will be observed from the following data, the food consists chiefly of berries and nuts, of intermittent productiveness. A large crop one year in a certain region is almost sure to be followed by a barren year. So that the pigeons would fare poorly if dependent closely on any one single locality. Their proclivity for circulating over large areas makes available to them the abundant crops recurring at different places. The birds in great numbers are thus able to find support somewhere all the time.

Out of twenty-two records, ten give acorns as the chief article of diet. Probably all the species of oaks are patronized by the pigeons. Those especially recorded are: in west-central and southern California, the live oaks (*Quercus agrifolia* and *Q. wislizenii*), in the foothill regions, the golden oak (*Quercus chrysolepis*), and along the Sierra Nevada and on the San Bernardino and San Jacinto mountains, the black oak (*Quercus kelloggii*). The acorn season lasts well through the autumn months, and under favorable circumstances even until February.

As with all other food, the acorns are swallowed whole in such numbers that the crop becomes at feeding time enormously distended. In this dilation of the gullet the food is acted upon by the powerful digestive juices, and both shell and kernel rapidly disintegrate and pass on to the stomach and gizzard. There is no disgorgement of hard parts of the food, as with some birds. Considering the apparent small size of a pigeon's mouth, an amazing thing is its ability to swallow

whole such relatively huge objects as the acorns of the golden oak, in particular.

In the coast region of central California the berries of the madrone (*Arbutus menziesii*) form an attractive food source in the fall of the year. In certain instances bands of pigeons have been known to stay around tracts of madrones until practically every berry had been taken. Sometimes the birds feed so largely on these berries that the flesh becomes discolored thereby (Jenkins, 1906, p. 126).

The berries of certain species of manzanita (*Arctostaphylos*) are resorted to when acorns fail. The little apple-like fruits are eaten both green and ripe, becoming available in July as about the earliest crop. At times in midwinter, October to February, the pigeons fall back on the abundant fruit of the Christmas-berry or California holly (*Heteromeles arbutifolia*), and more rarely upon the fruit of the coffee berry (*Rhamnus californicus*). The latter bears almost perennially.

There is a period of the year when fruit and nut crops have almost vanished. The flower and leaf buds of certain plants are then eaten in quantity. In February manzanita buds have been appropriated by the pigeons in the Sierran foothills (Dean, 1904, p. 111). In March and April the pigeons have been repeatedly observed to feed upon oak buds in the interior valleys of both west-central and southern California. One observer describes a bitter taste noticeable in the flesh of pigeons, thought to have been due to this diet of oak buds (Bendire, 1892, p. 123).

In southern California the sycamore balls are frequently eaten in early spring. No less than thirty-five of these ball-like flower clusters have been counted in the crop of a single pigeon (Evermann, 1886, p. 93). Various small plant seeds have also been reported as found in crops of pigeons.

Finally, in two instances, pine seeds have been found in the birds' crops: in Calaveras County in July (Belding, 1890, p. 21); and on Mount Pinos, Ventura County, June 29 (Grinnell, 1905, p. 382). It is, of course, probable in these cases that either the cones were fully ripe and the scales spread so that the seeds could be readily extracted, or that the seeds were picked up from the ground beneath the trees where they had fallen.

All of the above articles of diet include only wild fruits, such as are of indifferant value to man. At times, however, pigeons have been found to resort extensively to grain fields. In many cases the birds have repaired to stubble fields where they gleaned the waste grain, wholly worthless of course. Thus near Three Rivers, Tulare County, in July, 1891, pigeons were foraging in barley stubble (Fisher, 1893, p. 31). Then again, in a few instances, newly sown grain has been resorted to, with the result that more or less damage has been inflicted—the only way known in which the Band-tailed Pigeon affects man's interests unfavorably. At Palo Alto in January, 1901, good sized flocks were observed on newly sown barley fields. The crop of one bird was crammed with seed barley (Grinnell, MS). At Santa Monica, in February and March, 1901, flocks were feeding in grain fields. Their depredations were complained of by a rancher who had put out poison for them. Eight of the birds thus killed were examined (Swarth, MS).

"In March, 1901, great flocks of the pigeons poured into San Geronio Pass and fed in the barley fields. For about two weeks there were hundreds of them.

\* \* \* Their method of feeding was peculiar. Instead of spreading out they kept together, alternately walking and flying. Those behind would fly a few feet ahead of the advance line, alight, and walk along picking up grain until other rear ones would fly ahead and it came their turn again. In this way the flock

advanced, some in the air all the time, and ground was covered quite rapidly. The crop of a specimen secured \* \* \* contained 615 grains of barley by actual count" (Gilman, 1903, p. 134).

The relative paucity of records of definite damage to grain leads to the conclusion that the amount of actual loss inflicted by pigeons is very small. For, if it regularly reached appreciable proportions, we would hear far more frequent complaints. The irregularity in distribution from year to year serves to mitigate such an adverse bearing of the pigeon. Only at long intervals are the birds likely to visit a given locality in just the appropriate season to have any effect on the grain interests.

#### NESTING HABITS

Our Band-tailed Pigeon, unlike the Passenger Pigeon which once abounded in the northeastern states, does not nest in close colonies. Records show that with our bird, even where in summer numerous, the nests are widely scattered through a given tract of woods. An extreme case is reported from Arizona where, in the Huachuca Mountains, a community of about thirty-five pairs nested in a "scattered rookery, probably not averaging a nest to every three or four acres at the most thickly populated part" (Fowler, 1903, p. 69).

We find in literature a number of general statements to the effect that Band-tailed Pigeons "nest in small colonies". But in no case is there any detailed account of such nestings; and it may well be that these are general impressions or hearsay notions. It is true that all through the breeding season pigeons are seen in flight from place to place in small companies. It is possible that the component individuals belong to nesting pairs and convene in flocks when foraging, but isolate themselves when visiting their nests. This evident trait is probably responsible for the notion above referred to, that the birds nest in colonies. In the writer's experience in California, difficulty enough has been found in locating even one nest, and this when the birds were almost constantly in sight. The point is plain—that this species is not to be considered notably more sociable during the nesting season than the Mourning Dove. The pigeons scatter out at nesting time over large extents of suitable country.

Nesting places chosen vary considerably. According to Bendire (1892, p. 123), nests have been found, in Oregon, on the ground between two tree roots, upon an old stump eight feet from the ground, another in the top of a fir about 180 feet from the ground. In Washington, eggs are "often laid upon the bare ground of an oak grove, hop-field, or clearing, without pretense of nest". Usually, however, they are placed in fir saplings "at a height of ten or twenty feet, resting against the stem of the tree or upon a horizontal branch" (Dawson, 1909, p. 555).

Here in California, we have only hearsay statements to the effect that pigeons nest on the ground. Definite accounts of such a habit are lacking. Specifically described nesting sites are characterized by such remarkable uniformity in location that we are safe in concluding that the birds ordinarily select horizontal limbs of trees upon which to place their nests. Height above the ground varies in the described cases from 8 to 29 feet.

Nest trees, where named, have been black oak and golden oak, and these trees have stood in open mountain forests on canyon sides or steep slopes otherwise. In one case (Mailliard, MS) the nest was built upon the overhanging branch of a lilac, but this grew upon a rather open steep slope. It would appear that the birds select such a site as will allow of their taking direct and therefore rapid flight from and to the nest.

In structure the nests are mere platforms of coarse twigs. One now in the Museum of Vertebrate Zoology was obtained at Fuller's Mill, in the San Jacinto Mountains, at about 5900 feet altitude. The nest rested on a large limb of a black oak, about five feet from the main trunk, and was partly supported on one side by a small dead limb. The nest is a frail structure, made mostly of dead twigs from pine and oak trees. These twigs are laid crosswise so that there is a great amount of interstitial space. The diameter of the mass is about 220 millimeters ( $8\frac{3}{4}$  inches), though several straggling twigs extend far beyond this limit: the depth is about 100 millimeters (4 inches). The single egg rested at one side of the center of this rude platform. As remarked by Gilman (1903, p. 134) of two nests found by him in the San Jacinto Mountains at 6500 feet altitude, it is a marvel how the egg can be kept warm enough to hatch, resting on such an airy structure at that cool altitude.

It is believed that both birds take part in incubation. Bendire (1892, p. 127) states the period of incubation to be from 18 to 20 days. He states further that the young leave the nest about one month after hatching. If we allow one week for the selection of nesting site and construction of nest, a total of very close to two months is thus devoted to a single rearing.

#### RATE OF INCREASE

In our present study, in which we are seeking for facts upon which to base recommendations relative to the proper treatment of the Band-tailed Pigeon so as to make it of greatest value to the sportman's interests, perhaps the most important thing to determine is the rate of reproduction of the bird.

Unfortunately the published information in regard to the number of eggs laid or young reared consists largely of general statements. At the north, in Oregon and Washington, there is no doubt but that two eggs not infrequently compose one setting. We have definite information that in the Willamette Valley three nests were found each of which contained two eggs (Bendire, 1892, p. 123). On the other hand, Dawson (1909, p. 553) says explicitly: eggs usually one, sometimes two. Another report, from Beaverton, Oregon, gives one as the complement (Woodcock, 1902, p. 28). In Arizona, all reports agree that but a single egg is laid. Three specific cases are on record of one egg being found in each nest. This is true also of Colorado.

In California we have heard frequent reports to the effect that two eggs are commonly laid. As shown from the accompanying table, so far as definite accounts are available, but a single egg was the full nest complement in all cases but one. If two eggs are laid it can thus only be in exceptional instances, so rare as to be ignored in deductions concerning rate of increase. The occasional extra egg might well be considered as offset by desertions of nests, or disasters from other causes. In no case has more than one squab been found in a nest, though the data is confessedly limited.

The egg-laying season of the pigeon is restricted at all latitudes to the summer months. This, as shown on previous pages, is probably correlated with the fact that the bird repairs to the Transition life zone for the breeding season, which, whether at sea level in the north or on mountain ranges at the south, presents inhospitable climatic conditions at other seasons. In fact, the birds themselves undergo an annual migration, latitudinal at the north, vertical at the south.

In the state of Washington, according to Dawson (1909, p. 555) the pigeons arrive at the latitude of the Columbia River in April and depart in October or November; they arrive at Blaine, near the British boundary, the first week in May

and are gone by the last of September. The same author thinks it possible that two broods might be reared in southern Washington but only one farther north; and he gives the nesting time as May to July. These months include all the specific dates given for the region north of California.

In the mountains of Arizona, nests with eggs have been reported with apparent authenticity from March 6 to September 25 (Bendire, 1892, p. 123). This indicates a protracted breeding season, though the extreme dates are probably quite exceptional. It does not follow either that the same pair of birds rears two or more broods the same year. That not all the birds nest in a given locality at the same time is attested by Fowler (CONDOR, 1893, p. 69.)

The accompanying table shows all the actual dates of nesting known to the writer within the state of California. Extremes are May 3 and July 30, the first for a fresh egg, the latter for an egg nearly ready to hatch. The mean date for

TABLE GIVING DATA IN REGARD TO THE NESTING OF THE BAND-TAILED PIGEON IN CALIFORNIA

Place	Date	Contents of Nest	Authority
Pine Mt., 3250 ft., San Diego Co.	May 3, 1901	2 eggs (fresh)	Sharp (1902, p. 16)
Pine Mt., 3250 ft., San Diego Co.	May 11, 1901	1 egg (incubation well advanced)	Sharp (1902, p. 16)
San Jacinto Mts. at 6500 ft., Riverside Co.	May 14, 1897	1 squab (just hatched)	Gilman (1903, p. 134)
San Jacinto Mts. at 6500 ft., Riverside Co.	May 14, 1897	1 squab (half-grown)	Gilman (1903, p. 134)
Mt. Wilson, 5500 ft., Los Angeles Co.	May 23, 1897	1 squab (about one week old)	Grinnell (1898, p. 20)
Cuyamaca Mts., 4 miles from Julian, San Diego Co.	June 4, 1896	adult bird on nest, but not flushed.	Albert M. Ingersoll (in letter)
Pine Mt., 3250 ft., San Diego Co.	June 24, 1901	1 egg (incub. adv.; same nest as May 11, 1901)	Sharp (1902, p. 16)
San Jacinto Mts. at Fuller's Mill, 5900 ft., Riverside Co.	July 1, 1908	1 egg (incubation slight)	Museum Vert. Zool.
Mt. Wilson, 5500 ft., Los Angeles Co.	July 5, 1894	1 egg (considerably incubated)	Grinnell (1898, p. 20)
Lagunitas, Marin Co.	July 30, 1912	1 egg (incubation far advanced)	Joseph Mailliard (in letter)
Barley Flats, 5600 ft., Los Angeles Co.	last of July, 1888	1 young (able to fly)	Antonin Jay (in letter)
Barley Flats, 5600 ft., Los Angeles Co.	last of July, 1888	1 young (able to fly)	Antonin Jay (in letter)

eggs in the nest is June 16. A remarkably brief nesting season is thus indicated as regards our immediate region, and the same evidently holds with our winter visiting birds from the northwest coast.

The general statement is prevalent in works on western ornithology that two or more broods are reared by the Band-tailed Pigeon each year. A close examination of all the definite evidence submitted makes such a state of affairs, however, improbable. The notion seems to have originated with the report (probably an intentional prevarication on the part of an unprincipled collector and dealer in birds' eggs) that the Band-tailed Pigeon bred in southern Arizona "nearly every month in the year, and several broods must be reared by each pair during the season". The observations made by Swarth (1904, p. 5) and Fowler (1903, p. 69) in the same region do not support the above statement.

Considering the time necessary to rear a brood—as already shown, close to two months—and the extreme dates between which eggs or young have been

found in nests, it seems impossible that, at least as far as our knowledge of the species on the Pacific Coast is concerned, more than one brood can be raised each year by a single pair of birds. It is probable that, should the nest be robbed, a second egg will be laid the same season. And this might account for some of the later nestings. We have record of such occurrence (Sharp, 1902, p. 16): On Pine Mountain, San Diego County, May 11, 1901, a bird was flushed from its nest containing one egg, incubation advanced; this was taken, and on June 24 of the same season a second egg nearly ready to hatch was found in the same nest.

The question is pertinent as to whether or not pigeons breed the first year, that is, when they are a year old. We have no facts to offer in this regard, save that domestic pigeons nest the first year. Although Band-tailed Pigeons are to be seen in small companies all through the nesting season, it is just as likely that the constituent birds belong to nesting pairs, congregated for foraging, as that they are non-breeders. The writer's opinion is that the wild pigeon breeds the first year.

From the above facts the startling conclusion is to be drawn that the rate of increase of the Band-tailed Pigeon is slower than that of any other game bird in America! If successful, each pair of pigeons rears one young per year.

Each pair of Valley Quail rears on an average ten young per year (see Bryant, 1912, p. 138). It is to be inferred that under primitive conditions the Band-tailed Pigeon was ten times as immune from fatalities due to predaceous animals and other causes aside from senescence as is the quail. For a biological axiom postulates that the birth rate in a species has become adjusted to meet the maximum death rate to which that species is liable under normal circumstances.

#### ENEMIES OF THE PIGEON

Our enquiry has failed to bring to light a single case where a pigeon has met death through other than human agency. The Cooper Hawk is in every hunter's experience known to prey regularly upon quail, levying a very heavy tax the year through. But no one has reported molestation of pigeons by this or any other hawk.

One may infer something as to the natural enemies of an animal from its behavior. Pigeons fly in the open; when not foraging they roost on the most prominent dead-topped tree in the neighborhood, where they perch conspicuously outlined against the sky whether the observer be posted directly beneath or on the adjacent hillside. They appear to be unaware of any possibility of attack from a winged enemy. The only one to be expected is the Duck Hawk, in coastal regions where this falcon occurs; for tame pigeons have been known to be pursued and captured by it. But, as stated above, we know of not one definite case of even the annoyance of the wild pigeon by any species of hawk. Its size and heavy coat of feathers doubtless makes the pigeon a less desirable quarry than many other game birds.

When foraging on open ground, pigeons show little trepidation, save as closely approached by the hunter, who has educated the birds by repeated shooting at the flocks. In the foliage of trees or bushes the birds are likely to remain perfectly quiet upon the approach of man or beast. They thus often elude observation altogether. If routed out by too close approach, they leave their perch abruptly with a disconcerting clapping of the wings, and with velocity acquired with surprising quickness are almost instantly far beyond reach of the bob-cat's spring or even the shot-gun's charge.

To recapitulate, the Band-tailed Pigeon is extraordinarily immune from na-

tural dangers, and its remarkably slow rate of increase was doubtless great enough to easily maintain its numbers under the conditions obtaining *before* the appearance of the white man and his firearms.

#### FACTORS FAVORING THE PERSISTENCE OF THE PIGEON

As we reflect upon the above facts of slow increase and gregarious habits our only marvel is that the pigeon has been able to maintain its existence at all in face of the fifty years or more of hunting to which it has been subjected without restraint. The factors which have allowed the persistence of the bird against this new and adverse condition are probably included among the following.

(1) The birds repair to forested areas for the breeding season. These are mostly in rough, mountainous country, sparsely settled by man. It is likely, further, that owing to the forest reserve system, of more and more recognized value as a governmental institution, these summer retreats will never be wholly destroyed through clearing or settlement.

(2) The pigeon does not nest in colonies, but the individual pairs scatter out through the woods.

(3) The pigeon is secretive in its nesting habits, so that the nests are not subject to molestation by marauding humans or beasts. "Their nests are mere platforms and hard to see; owing to the surrounding foliage, they are not readily discovered except by the actual flushing of the bird. One must be quick even to see the bird. It does not flutter along the ground in the manner of the Mourning Dove, nor does it sit on a nearby branch and coo, but is off like a shot; and it requires a pretty sharp eye to follow its flight through the trees" (Sharp, 1902, p. 16).

(4) In winter, although the pigeons gather in large flocks and concentrate in limited districts, they are irregularly distributed from year to year. That is, although they may be hunted to the verge of annihilation in a restricted area one season, the residue is not likely to return to the same locality the following year, and so be subjected to a repetition of the catastrophe. The nature of the food and the fact that this is of variable supply, leads to the wintering of pigeons in recurring seasons in rough mountain country where they are largely out of reach of hunters, thus giving the birds frequent respite.

(5) Several writers and observers, even as far back as Cooper (1870, p. 507), comment upon the quickness with which the pigeons become wary when shot at. They learn suspicion of hunters; "their shyness is probably due to the fact that in their passage from the north they are compelled to run the gauntlet of hundreds of gunners" (Henshaw, 1876, p. 265).

And here is one benefit which accrues from the flocking habit: individual safety is attained through community watchfulness. This may be considered as in part counter-balancing the possibility of pot-shooting numbers of the birds at one time because of their being massed in a flock. The gregarious habit brings to the hunted bird both benefit and danger; but with the increased deadliness of firearms, the constantly augmented numbers of hunters, and the ever greater facilities for quickly reaching a locality where pigeons are known to have appeared, it would seem that the flocking habit brings disproportionately greater danger to the birds, as time goes on.

#### THE DESTRUCTION IN 1912

Judging from recorded accounts, it is only at rare intervals that such a

slaughter has taken place as that noted in the southern coast counties of this state in the winter of 1911-12 (Chambers, 1912, p. 108). Indeed, as suggested by the writer cited, such unmitigated destruction could not last long without complete extinction as a result. In substance Chambers' account is as follows:

"Band-tailed Pigeons were abundant the past winter from Paso Robles south to Nordhoff all through the coast range of mountains. One hunter from Los Olivos shipped over 2,000 birds to the San Francisco and Los Angeles hotels. The morning train from San Luis Obispo to Los Olivos on Sundays averaged 100 passengers who came to hunt pigeons. A prominent hunter stated that these passengers averaged about thirty birds apiece per day. That would make this one day's excursion account for over 3,000 pigeons. Now—this is only one train and one day's hunting! One can hardly calculate the number of birds killed by hunters in automobiles, and by those who started from Los Angeles, San Francisco, Santa Barbara, Ventura, Santa Maria, Paso Robles, Lompoc, and other smaller towns.

"The writer, who is in the gun and ammunition business, was thoroughly disgusted with the game hogs who simply shot pigeons for the sport (?) and could not even eat them all. It is a shame that something is not done for these beautiful birds, which are doomed to follow in the footsteps of the Passenger Pigeon. I honestly believe that the people will never again see such a flight of Band-tailed Pigeons. In Nordhoff it is the largest they have ever seen, and the birds evidently hung around until they were simply shot out. This same state of affairs is probably true in other localities.

"If something is not done very quickly these birds are doomed: for any bird that flies in such flocks is bound to be exterminated. What can be done?"

It is probable that an unusual concentration of the pigeons from the whole Pacific Coast region into a district easily reached by hunters gave exceptional opportunity for the infliction of the slaughter above recounted. The weak place in the pigeon's defense thus comes when conditions of restricted food supply force it into localities where its survival depends upon whether or not hunting is sanely regulated. Obviously, suitable legislation must be enacted at once, before chance of a repetition, even in lesser degree, is afforded.

#### THE VALUE OF THE PIGEON TO MAN

A bird in its relation to man may be considered in four different bearings.

(a) No matter what the degree of value of an animal to man's interests (and it may, on the whole, be even of extreme detriment), to allow complete extermination is out of harmony with an enlightened consideration of the future. Our successors will not approve of our thoughtlessness in completely destroying the grizzly bear! No matter if the Band-tailed Pigeon had no value, or was even noxious economically, this is no reason why the life of the *species* should be jeopardized.

(b) Very many of our birds are of pleasing plume, cheerful manner, and attractive song, thus bringing an active appreciation on the part of the majority of mankind. In this role birds at large have a marked esthetic value. The Band-tailed Pigeon is admittedly of very little or no attractiveness on this score. Its voice is not at all pleasing, as is that of the Mourning Dove, and its reclusive habits bring it rarely to the notice of any except the hunter.

(c) The economic value of many birds is positive. They perform distinct service in destroying injurious insects or seeds. Other birds are decidedly the reverse, because of their ravages on crops. As shown on previous pages of this

paper, the Band-tailed Pigeon is practically indifferent in its bearing upon agricultural interests. The bird feeds upon native fruits and nuts of no value to man. At times it forages over stubble fields for waste grain. In rare cases newly sown grain fields have been raided to an extent to amount to definite damage. We are safe in saying that the pigeon has no beneficial bearing upon agriculture; it is at least indifferent.

(d) Game animals form an important asset of the state, because they are of direct use to man as food, because their pursuit leads to pleasurable and hearty out-door exercise on the part of many men who otherwise pursue sedentary lives, and because hunting by whatever means and to whatever extent involves large commercial dealings. We would not here include the market value of game, as the time is clearly close at hand when market hunting will be altogether a thing of the past; non-sale of game is the only justifiable course.

The Band-tailed Pigeon probably never did compare favorably in importance to the sportsman with quail or ducks. Its large size, and consequently greater food value, certainly gives it superiority over the dove as a game bird, though its numbers at best probably never approached those of the dove. The latter, too, was far more accessible.

The flesh of the pigeon is asserted by the majority of those who have eaten it to be delectable, favorably comparable with that of other game birds. In a few cases it is described as tough, though experience teaches that with any meat mode of cooking has chiefly to do with the results. One person (Bendire, 1892, p. 123) complains that in Oregon the flesh of pigeons shot at certain seasons was "bitter." This was thought to be due to the nature of the food locally. It is safe to say that no criticism of the pigeon as an article of food will receive general confirmation.

We have no statements from sportsmen of experience as to the rank of the pigeon as a bird worthy of skill in stalking and marksmanship. Volumes have been written with regard to quail, doves and ducks. The pigeon is doubtless, because of its totally different habits, in a class by itself. The writer has hunted pigeons to a small extent, and while confessedly not an acute sportsman, must admit that no other game bird, except jack snipe, has offered him so much of the hunter's exhilaration.

We have reason to believe that from every standpoint the pigeon deserves high consideration as a game bird of California. As has been clearly brought out this is the chief value of the bird to the interests of the state. Granted the last stated proposition, the next question to claim our attention is as to the means by which the pigeon may be brought to a point where it will be of greatest use as a game bird.

#### LEGISLATION RECOMMENDED

Up to the present moment not one whit of protection has been accorded the Band-tailed Pigeon in the State of California, save that in common with other game birds it has recently been declared a misdemeanor to destroy its eggs. At the same time there has been neither close season, nor bag limit, nor non-sale. It has thus been possible to slaughter pigeons at any season, and in any numbers, and to sell them without restriction in the open market!

This is exactly what occurred in the spring of 1912. To re-quote from Chambers (1912, p. 108): One hunter from Los Olivos, Santa Barbara County, shipped over 2,000 birds to San Francisco and Los Angeles hotels. The morning train from San Luis Obispo to Los Olivos on Sundays averaged 100 passengers who

came to hunt pigeons. A prominent sportsman stated that these passengers averaged about thirty birds apiece per day. This would make a single day's excursion account for over 3,000 pigeons. The pigeons "evidently hung around until they were simply shot out."

Is it not obvious that we have now allowed the unrestricted killing of pigeons until actual extermination is threatened? Is it not now too late for the enactment of *restrictive* measures to have any benefit in saving the pigeon as a game bird? Is not the only alternative demanded by the facts, an extended close period, so as to allow the pigeon to recover somewhat of its former strength?

When we consider the extraordinarily slow rate of reproduction of the Band-tailed Pigeon—as slow as that of the Black-tailed Deer which for more than a decade has been accorded a long annual close season and a bag limit of *two* in one year—in conjunction with the uncurbed slaughter to which the bird has been subjected, only one course appears to be open if we wish to re-establish the pigeon as an important game product of the state. It should be accorded at least *five years' total* protection. This would give it a chance to recover to a certain extent from the long period of unrestrained killing which it has up till now endured with the odds increasingly against it.

Only such a close season, put into effect at once, will save the Band-tailed Pigeon, *as a game bird*. Because of the probable permanence of our mountain fastnesses scattering representations of the species are likely to persist, in spite of continued persecution, for a few years to come. But if we are to count upon the Band-tailed Pigeon as an element of value in the game resources of the state, appropriate measures must be enforced to allow the re-growth of an adequate breeding-stock, and thereafter the annual toll by hunters must be restricted to a percentage inside of the birth-rate.

#### SUMMARY

The Band-tailed Pigeon has been reported in greater or less numbers from widely separated localities, from the Rocky Mountains to the Pacific, and from British Columbia to Mexico. Yet the evidence at hand leads to the belief that all those birds breeding within the Pacific Coast region from Vancouver Island south to the Mexican line, concentrate during the winter season in the valley and foothill sections of west-central and southern California. It becomes clearly apparent, therefore, that California holds the key to the future of the species as far as the Pacific slope is concerned.

Because the pigeon is broadly scattered throughout the forests and mountains of the whole Pacific district during the summer, it is not at that season particularly liable to decimation. But it is during the *winter*, when the birds are forced by uneven food supply into small areas in central and southern California, that there is a chance for almost unlimited destruction by hunters, such as occurred in the late winter of 1911-12.

In rate of increase, the Band-tailed Pigeon is by far the slowest of all our game birds. As a rule but one young is reared each year. Contrast this with ten among quail, eight among ducks, and four among wading birds. The impressive fact that our wild pigeon does not exceed, in rate of reproduction, the birth-rate of deer, antelope and elk, suggests the demand for treatment in game legislation to correspond with that given these large mammals.

Because of the dependence of the Band-tailed Pigeon upon wild fruits and nuts, and because of the varying crop of these from year to year, the winter distribution of the bird is practically never the same two years in succession. While

this irregularity in winter distribution frees the bird from the danger of continued pursuit in one locality, it on the other hand brings the entire pigeon population during recurring years into regions thickly populated by man, or at least of easy access to the hunter.

The chief or only value of the pigeon to man lies in its service as a game bird, and as such, it is pre-eminently worth cultivating. There is every reason to believe that the Band-tailed Pigeon is now represented by such very small numbers, as compared with its original abundance, that there are not enough birds even to warrant a restricted period of shooting annually. The thing which must be done, if we want the bird to figure at all in the future among our game birds, is to accord it a close period of at least five years. In this time its numbers should regain a stage where a subsequent annual open season would be warranted.

As it is, the Band-tailed Pigeon has been left practically without protection and subjected at times to unlimited slaughter, until the bird is now undoubtedly beyond effect by any measure except the close period here advocated. In fact, there is grave danger of total extinction, as in the case of the Passenger Pigeon of the east. And circumstances are very much the same as regards the attitude of man until too late.

Steps must be taken immediately to give the Band-tailed Pigeon that degree of protection which will insure its permanent existence as a game asset of the future.

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## FROM FIELD AND STUDY

**Another Instance of Cannibalism in the Spotted Owl.**—The Spotted Owl, *Strix occidentalis* (Xantus), is a rather rare bird in this section of California, judging from the number of skins in southern California collections. Lucky is he who, after a dozen years' work in the field, can place more than one specimen to his credit. For this reason I wish to record one shot by R. D. Jewett in Pacoima Canyon, above the junction with Maple Canyon, back of San Fernando, California.

A pair had been heard the night before, and campers had fired several shots in the direction of the sounds, evidently with results, for on the following night only one bird was in

evidence, continually moving about and calling. This bird was shot within the range of the campfire light, at 10 o'clock in the evening of September 28, 1912. It proved to be a female, with its crop gorged with the fresh remains of a Pigmy Owl (*Glaucidium gnoma pinicola*). One foot, leg, and a mass of feathers was swallowed entire, and bid fair to produce severe injury, as two of the claws had already pierced the crop and the skin of the throat, allowing the contents to ooze forth.

A similar instance is recorded by C. H. Richardson, Jr. (CONDOR, VIII, 1906, p. 57), in which a Spotted Owl was found to have dined on a Pigmy Owl, and considering the rarity of both species, the coincidence is remarkable.—FRANK S. DAGGETT.

**A Specimen of Bendire Thrasher in the San Diegan Region.**—On September 10, 1912, Mrs. Harriet Williams Myers placed in my hands a live bird which had proven a puzzle to her in her attempts to identify it. The bird had been picked up helpless in a street of the Garvanza district of Los Angeles, California, near the hills between that city and Pasadena, and despite her most painstaking care had failed to mend. It was turned over to me as of possible interest, and proved to be *Toxostoma bendirei* (Coucs).

The specimen was submitted in final appeal to Messrs. Grinnell and Swarth of the Museum of Vertebrate Zoology at Berkeley, who consider it a juvenal of the year, just molting into first winter plumage. Mr. Grinnell raises the question of possible artificial introduction as a caged bird, a natural question in view of the sedentary habit of the species in its normal habitat. The superb musical powers of the species would make it a desirable cage bird, but, in a somewhat extensive collecting experience over southern Arizona, although I found Cardinals and House Finches used in this way, the thrashers never were.

With the consent of Mrs. Myers the specimen is deposited in the University of California Museum of Vertebrate Zoology where it is catalogued as No. 23259.—LOVE MILLER.

**Birds New to the Vicinity of Lake Coeur d'Alene, Kootenai County, Idaho.**—

*Colymbus nigricollis californicus*. Adult specimen examined October 9, 1912.

*Gavia lumme*. Young female specimen examined October 6, 1912.

*Oidemia perspicillata*. Adult male specimen examined October 9, 1912.

*Bubo virginianus arcticus*. Two adult specimens examined October 8, 1912.

*Falco mexicanus*. Fine specimen examined November 6, 1912. Not new in this locality but very scarce.—H. J. RUST.

**White-throated Sparrow in Western Washington.**—On October 13 I had the good fortune to collect a female White-throated Sparrow (*Zonotrichia albicollis*) at Sherlock, Thurston County, Washington, the first record, I believe, for any point on the Pacific Coast north of Oregon. This bird was with a big flock of *Z. l. nuttalli*, which had begun to arrive the previous afternoon. This migration was an odd occurrence in itself, as all the local breeding Nuttall Sparrows had left several weeks before.—J. H. BOWLES.

**Some Late Nesting Notes from the Huachuca Mountains, Arizona.**—On July 29, while locating a site for a wood cutter's camp I heard the "whip-popper" note of a Palmer Thrasher (*Toxostoma curvirostre palmeri*), and on looking into the only cholla in sight found the nest and two fresh eggs. Two weeks later the latter had hatched, and during September and October I saw the young birds frequently about the camp, whenever I happened out there.

September 1 I was in Ramsay Canyon for a few hours, and from force of habit, spent part of the time looking around a bit. On the lard bucket bail which I had hung up in the identical place from which I had taken my set of Blue-throated Hummingbird (*Cyanolaeus clemenciae*), previously recorded in THE CONDOR, I found a new nest and two well feathered young. A week later, they were still in the nest but almost able to fly. Their backs showed the green shades very nicely, and there was a slight darkening on the throat of one, somewhat in the nature of specks. I took photos of them, hanging the nest down in the light for that purpose. They fluttered out as I took them down, but remained quiet after being replaced.

October 4, my uncle, Mr. F. N. Wolcott, while deer hunting, flushed a Band-tailed Pigeon (*Columba f. fasciata*) from its nest in a small oak. The one egg was fresh. I tried to locate the place a week later but found only an empty nest which may or may not have been the one he saw.—F. C. WILLARD.

**More Band-tailed Pigeon Notes.**—On a recent trip to San Luis Obispo I gathered

some more apparently authentic information which is worthy of recording, furnished me by a person whose name will be withheld for the present. San Luis Obispo was the main outfitting station for the pigeon hunting during the great flight of 1911-12.

One market hunter, shooting for the San Francisco market, killed 280 pigeons under one oak in one day. This same hunter was shooting every day during the flight, so it can be imagined what a number he must have killed. One dealer in ammunition sold 3500 shotgun shells for one day's hunt, and he says that on that day the individuals on this excursion brought in 1560 birds. These figures, together with the note previously published in *THE CONDOR* (xiv, 1912, p. 108), will give some idea of the extent of the slaughter. I firmly believe that these figures are not exaggerated, and that they are not far from the truth.

Hunters are now reporting a few pigeons at San Luis Obispo and at Santa Barbara. The first noted each year are termed scouts by the old hunters, who believe that the main army sends scouts on ahead to report on food conditions. The hunters are looking for another big flight this winter.

I will be in this country regularly during the coming season, and will keep a close watch on this beautiful but apparently doomed bird.—W. LEE CHAMBERS.

**No-Sale of American-killed Wild Game.**—Readers of *THE CONDOR*, and especially members of the Cooper Club, should take every opportunity to correct impressions which are being distributed broadcast apropos the effect of a "No-sale" law.

It has even been said that this measure is "class legislation." Laws which *permit* the sale of game are, it is true, class legislation of the worst type. They permit a few hundred market gunners, and the wealthy hotel and cafe patrons who are financially able to purchase game to reap the benefits of that which is protected at the instance of all people of the state. They are also allowing the rapid extermination of our best native species. Every animal which has been allowed to be exploited for profit has been practically exterminated. Even the whales of the sea are no exception! Remember the sea otter, the buffalo, the passenger pigeon!

To allow of the unlimited sale of game in California, as Assemblymen Harry Polsley of Red Bluff and Milton Schmidt of San Francisco desire, would be to cause its utter extermination within ten years.

Letters on file in the California Museum of Vertebrate Zoology indicate that ducks and geese have decreased from fifty to ninety-five per cent in the San Joaquin Valley in the last ten years.

*We must have No-sale, and we must have it immediately.*—W. P. TAYLOR.

**An Unfortunate Dove.**—On Monday, June 17, 1912, near Goose Lake in Modoc County, I found the body of a Mourning Dove which had met death as the result of a very peculiar misfortune. The bird was found on a horizontal beam four inches wide in an



Fig. 8. AN UNFORTUNATE DOVE

old deserted barn. It was facing the wall, i. e., lying crosswise of the beam, with the tail hanging over and closely hugging the side of the timber, as though its death throes were concerned with maintaining its precarious position. The cause of death was not far to seek. The upper mandible had been jammed backward and downward through or behind the ramus of the lower one, whence it could not be retracted. Not only so, but skinning showed that the windpipe had been caught and skewered, and pushed forward along with the distended skin of the mentum. The bird was in a very emaciated condition, inasmuch that the skin was very largely adherent to the flesh, and the end of the breast-bone touched the anus. The viscera were a green mass, which for fear of poisoning we did not dissect for sex indication; but the bird seemed recently dead, inasmuch as there was no offensive smell, and the feathers were firmly in place. Moreover, no insect pests had begun to attack it.

Mr. Allan Brooks, who has examined the specimen, is of opinion that its plight was due to a recent head-on collision with a telegraph wire, and cites the example of a Western Chipping Sparrow whose bill was in exactly similar condition save that the wind

pipe was not involved. This dove, moreover, was a last year's bird, so that its peculiar hap could not have been due to a misguided paroxism of parental regurgitation as I was at first inclined to surmise.—W. LEON DAWSON.

**The Supposed Occurrence of the Blue Goose in California.**—The recurring statement that the Blue Goose (*Chen caerulescens*) is of casual or occasional occurrence in California, an assertion which, on rather weak evidence, has had wide acceptance, renders it particularly desirable that the capture of every bird supposed to belong to this species be investigated, and the identity of the specimen be thoroughly established. This, however, is not always possible, as the birds on which hunters' statements are based are seldom saved long enough to afford an opportunity for examination.

The present remarks are incited by a recent instance, in which the capture of a Blue Goose appeared to be well authenticated, and which may serve as a demonstration of the extreme care to be used in accepting records whereby closely similar species may be confused.

A letter was received from F. J. Smith, of Eureka, Humboldt County, California, stating that he had in his possession a specimen of the Blue Goose, taken in that vicinity, on October 22, 1908, and requesting permission to send it to the Museum of Vertebrate Zoology in order that his identification be confirmed. The bird arrived soon after, and was carefully examined. Although the Museum collection contains no specimens of *Chen caerulescens*, it does contain a fairly large series of *Chen hyperboreus hyperboreus*, and on comparison the supposed Blue Goose proved to be a bird of this form, in the grayish, immature, plumage.

A search through descriptive literature failed to bring to light any statement clearly defining differences between the immature plumage of *caerulescens* and *hyperboreus*, and the question naturally arises as to whether previous supposed instances of the occurrence of *caerulescens* in California have not also been founded upon young birds of *hyperboreus*, the two forms being so very similar in this stage.

The Blue Goose was first included in the list of California birds upon the strength of the statement by Belding (Zoe, III, 1892, p. 97) regarding the capture of two specimens near Stockton, February 1, 1892. Fragments of one of them, head, neck, wings and legs, were submitted to Mr. Ridgway, and by him pronounced to be juvenile *caerulescens*. While the authority in support of this record is thus of the highest degree, still, considering the apparently close similarity of the two species *hyperboreus* and *caerulescens* in the immature plumage, and the absence of corroborative evidence since the time of Belding's record, we are surely justified in demanding stronger proof of the occurrence of the Blue Goose in California.

The specimen suggesting these remarks is an example of the ease with which mistakes in identification can be made. From written descriptions alone there was nothing to disprove its being *caerulescens*, either that species in immature plumage having no distinctive peculiarities serving to distinguish it from the same stage of *hyperboreus*, or else such differences having never been clearly set forth; but comparison with examples of *hyperboreus* unmistakably demonstrated the fact of its belonging to this species.—H. S. SWARTH.

**The Black-chinned Hummingbird in Marin County, California.**—While driving along the road at San Geronimo, Marin County, California, one day last spring (1912) I was hailed by C. A. Allen, who came out of his house to tell me of having noticed a strange hummingbird among the usual number of Allens and Annas that nest in his yard every year, and that he had finally captured it. This stranger turned out to be a male Black-chinned Hummingbird (*Archilochus alexandri*), and is the first record of this species in Marin County, as it does not seem to take kindly to the humid coast belt, but works its way to its northern limit by following the more interior valleys. Mr. Allen said he thought we ought to have the specimen on account of our having been so closely associated with Marin County for so many years, but he was collecting for Dr. Jonathan Dwight, Jr., at the moment, and felt that the specimen must go to him. Soon after receiving it Dr. Dwight wrote me of the circumstances, and said that he felt as if he were encroaching on our preserves, that the place for it was in our collection (Coll. of J. & J. W. Mailliard), and that it should be recorded by one of us. In due course the specimen arrived, and is now in the place where Dr. Dwight thought it ought to be. I mention these details in order to show our appreciation of the graceful courtesy thus shown to us—a sort of courtesy that ever should but does not always exist among collectors. The date on which this hummingbird was taken was March 3, 1912.—JOSEPH MAILLIARD.

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## EDITORIAL NOTES AND NEWS

Every one of our readers will doubtless join with us in congratulating Mr. William Leon Dawson on his remarkable success with the Surf-birds, as described on the first pages of our new volume. Here is a bird so rare that many a large collection entirely lacks a specimen; yet a flock was "captured" by the camera, and the results now presented bring the species to the intimate acquaintance of anyone who sees our magazine. We may say *sub rosa* that Dawson has some more conquests, to be announced in the course of the year.

The publication of two more numbers of the Cooper Club's *Avifauna* series is planned for the year 1913. The manuscripts for both are now in the Editor's hands and will go to the printer as soon as our Business Managers, Chambers and Law, give the word. The titles of the two new brochures are: "Birds of the Fresno District, California", by John G. Tyler; and "Distributional List of Arizona Birds", by Harry S. Swarth.

Mr. George Willett left San Francisco December 5 as one of a party headed by Commodore Salisbury, U. S. N., organized to visit several of the small islets northwest of Hawaii. The expedition is sent out under the auspices of the U. S. Biological Survey, and has for its chief object the inspection of Laysan Island. Here it is proposed to take a census of the sea-bird population and to take steps for further protecting the colonies

of albatrosses recently threatened with extermination through the raids of plumage hunters. Another danger menaces the burrowing petrels, namely, rabbits. These mammals were thoughtlessly liberated on the island some years ago and it is feared will rout out certain birds from the very limited nesting area of the latter. It is hoped that some means may be discovered by which Laysan will be entirely rid of the mischievous rabbits.

Mr. R. H. Beck, so well known for his splendid make of water-bird skins, left San Francisco December 15 for a year's field work around the southern end of South America. He will pay especial attention to the sea-birds, collecting on this trip in the interests of Dr. L. C. Sanford, of New Haven, Connecticut.

Mr. A. C. Bent is planning an expedition for the early spring along the coast of Lower California in quest of birds. He will be accompanied by H. H. Kimball and H. W. Marsden.

It is perhaps oftenest the wisest thing to hush up an unpleasant matter, especially if it involve a member of one's own household or an associate in social or club affiliation. In the present instance, however, the opportunity for the pointing of a good strong moral seems to overbalance the instinct for clannish secrecy.

The Cooper Ornithological Club has always stood for absolute honesty, more particularly in regard to whatever relates to its own field of interest. One purpose of the Club is to contribute to ornithology as a science, in other words to add *facts* to our knowledge of birds.

The case referred to is one where the evidence pointed toward the fabrication of data by a Club member, such spurious data having been put in circulation attached to certain specimens. To state the case plainly, "facts" were forged, and might easily have found place in published literature. Who knows but what such has really happened, though now beyond finding out?

Needless to say, the tainted name has been expunged from the Club's membership roster, after due procedure, as noted in the Minutes.

Unscrupulousness in the statement of scientific detail is, of course, not distantly allied to "nature-faking." The former is criminal, the latter very nearly so. Neither are to be countenanced by the true student, typified in the Cooper Club's membership.

It is probably superfluous to urge the distinction between the above exhibition of perversity, and the innocent making of mistakes. Not one of us has contributed to published ornithology but what experiences gnawing regrets over mistakes of which he was originally unaware. As long as these regrets stir the soul, one may be sure that he is possessed of a scientific conscience justifying him, with increased care for accuracy, in further contribution.

The California Associated Societies for the Conservation of Wild Life, of which the Cooper Club is a member, has practically concentrated its attention on the proposed bill prohibiting the sale of game. The measure as drawn up is in ideally good hands. Senator William R. Flint, popular, influential and able, has already introduced the bill.

Communications and editorials from all over the State and the United States are being received demanding that the sale of game be prohibited. A book by Dr. Wm. T. Hornaday, Director of the New York Zoological Park, just issued, says California's game is doomed unless a non-sale law is passed at once.

The National Association of Audubon Societies, the New York Zoological Society, and the Campfire Club of America are urging California to join the distinguished roll of eighteen states that have entirely prohibited the sale of game.

Now! Every reader of THE CONDOR, and especially every Cooper Club member, who believes in the justice of this cause, can render effective help by writing immediately to his Assemblyman and Senator as well as to Hon. George J. Hans, Chairman Senate Committee on Fish and Game, and Hon. John H. Guill, Chairman Assembly Committee on Fish and Game, requesting their support for the Flint bill, prohibiting the sale of game. Write also to Senator Flint, assuring him of your hearty support.

The following extract from an editorial in the FRESNO REPUBLICAN makes short work of the absurd claim that the man who does not hunt is deprived of a natural right if he cannot buy game to eat. The great mass of people hunt for sport; only the hotelman and the market gunner hunt for private pockets in order that lazy Croesus may "buy a duck when he wants it!"

"They will simply have to go without it for awhile," was the reply made at a hearing in Sacramento to the query what the people who do not shoot will do for game, pending the development of its commercial production for sale. And the *Examiner* takes this as a confession of the absurdity, and injustice of the whole scheme of reserving wild game from tame commerce.

But why not? Are the only privileges to be those of money? Are we so commercialized that the normal way of getting everything must be to buy it? There are plenty of things—diamonds and champagne and automobiles, for instance—that most people must go without. Those who can afford these things see no injustice in the exclusion of those who cannot. The exclusion is commercial, and therefore, to the commercial-minded, it is conclusive. But when any other standard of dis-

inction is suggested, by which they would be the excluded ones, then they grow righteously indignant. Yet once it was quite axiomatic that all good things belonged to the strong as it now is that they belong to the rich. The mighty hunter had the game, the mighty warrior the government and the mighty miser his gold heaps—unless the warrior and the hunter took them away from him. The mighty thinker, then as now, had no privilege but the hope of posterity's recognition. But now the mighty miser demands the first fruits of all the others, and sets himself up as the only privileged class. That the game should be the privilege of the hunter strikes him as an invasion of his own right to monopolize all privileges to himself.

Yet already most of the best things of life are attainable only by other processes than purchase. *The best part, even of the game, is not the eating, but the hunting of it.* Pampered Croesus, at Delmonico's may eat his canvasback, and carp because it was on the fire nineteen minutes instead of eighteen. But who shall buy the sunrise, the tang of the morning air, the mists on the salt marshes, the spell of the hunting and the triumph of the successful shot? *Ten thousand generations of hunting ancestry bequeathed us the instinct whose satisfaction is the huntsman's joy. But it is a thing to be achieved by stout legs, clear eyes and steady nerve, and is for sale to no fat purse except for personal exertion also. Is it imperative that the mere incidental gastronomic product of that uncommercial activity shall be open to commercial access?*

The two finest mountain views on the American continent are doubtless those from the summits of Mt. Whitney and Mt. Dana. They are open to any man with strong legs and sound lungs, and the price of beans and bacon, but a million dollars will not carry a man to them in a Pullman car. The love of a good woman is one man's freely, for his own devotion in return, but it is no man's for pay. Money will buy books and pictures and music, but not the knowledge to appreciate them. And the touch with wild things, and the hereditary lure of the wild man's chase for them—these are something better than buying and selling. *If, to preserve the wild poetics and to keep alive the untamed pursuit of them, it becomes necessary to separate the products of the hunt from organized commerce, until commerce itself can produce what it consumes, there is no injury done except to the fiction that all things are the natural right of him who is able to pay for them.*—W. P. T.

#### REPORT OF PROGRESS IN CONSERVATION

To contingent organizations making up the

California Associated Societies for the Conservation of Wild Life:

An organization like the Associated Societies suffers a considerable handicap at best through the lack of coordination between the organizations and individuals making it up, this lack of coordination being the result of the spatial dispersment of the membership, and of the absence of a medium such as an official publication to keep each individual member fully informed. It is hoped that the publication of this report in the organs of the constituent societies will, in a measure eliminate this disadvantage.

As to the work of the Associated Societies: At the meeting of the Executive Committee, held December 19, a particular program of improvement along wild life conservation lines was decided upon. This program emphasizes the "no-sale of American-killed wild game" law, and the putting of assistants and wardens of the State Fish and Game Commission on civil service basis, as of supreme immediate importance.

Hundreds of letters have already been sent out; many of these requesting donations of money to be used to carry on the work; others to persons of influence throughout California, as a means of getting them to work with us; and others to legislators, calling their attention to the alarming decrease in our native fauna, and requesting their best attention to the field.

A news letter on "No Sale of Game" has recently been printed and sent out to a hundred of the most influential newspapers in California. Other news letters dealing with other phases of the work will be dispatched as finances permit.

As was anticipated, powerful selfish interests oppose us. The San Francisco hotel men, who would feel the effect of a no-sale law, have already stimulated the kept press to do their bidding. If we can get the facts to the people, there is no question of the result.

We can get the facts to the people if we are given the necessary finances.

Shall we permit California's fields, marshes, and forests to become devoid of all animal life? Shall we stand for the destruction for profit of our wild life, one of California's most attractive features?

The Associated Societies must answer these queries with a decisive "No!" and must be able to follow up the negative with a vigorous and able demand for constructive legislation.

You can help—(1) by becoming an islet of information along this line, (2) by awakening enthusiasm in wild life conservation, (3) by keeping track of your representatives in the State Legislature, and last but not least

(4) by seeing to it that your society makes a donation to the war chest of the Associated Societies, and by making a donation personally if you are able to do so.

Here is the challenge. The enemies of wild life—the men who put the dollar above all else—are united and have powerful financial ability. Will you accept the challenge, and enlist in the Army of Defense?

The aim of the Executive Committee is to weld the California Associated Societies into a powerful and effective fighting machine. The assistance of each constituent society, and so far as possible, of each member, is earnestly desired.

Respectfully submitted in behalf of the Executive Committee.

W. P. TAYLOR.  
Secretary-Treasurer.

#### PUBLICATIONS REVIEWED

FOOD OF OUR MORE IMPORTANT FLYCATCHERS, by F. E. L. BEAL (U. S. Dept. Agric., Bureau Biol. Surv., Bull., no. 44, 67 pages, 5 pls; Sept. 19, 1912).

The flycatchers are to be numbered among the birds which are almost wholly insectivorous. Their economic value, measured by their destruction of injurious insects, is, therefore, very great. The above cited recent bulletin of the Bureau of Biological Survey, by F. E. L. Beal, records the food of seventeen species of flycatchers, and proves their value as allies of the farmer and horticulturist.

In discussing the food of the Arkansas Kingbird, Mr. Beal says: "Honeybees (*Apis mellifera*) were noted in 5 stomachs. In all, there were 31 bees, of which 29 were males, or drones, and 2 were workers. This bird has been accused in California of eating honeybees to an injurious extent. It was said that the bird lingered near the hive and snapped up the honey-laden bees as they returned from the field. This statement is not borne out by the facts stated above."

Even granting that much of the complaint received from bee-keepers is based on circumstantial evidence it still seems reasonable to believe that this bird takes larger numbers of the workers than the evidence would indicate. Many bee-keepers complain bitterly that kingbirds destroy queens as well as drones. As many make a business of raising queens for the market their loss can easily be reckoned in dollars and cents. The fact that queens look and fly more like drones makes this complaint seem reasonable. Looking at the same question from another point of view: Stomach examination may not furnish accurate evidence as to the numbers of workers destroyed; for kingbirds, like orioles, may

drop the worker after crushing it in their bill to get the honey.

In the examination of 3,398 stomachs of flycatchers the animal food was found to average 94.99 per cent and the vegetable 5.1 per cent. The presence of a considerable percentage of parasitic Hymenoptera in the stomachs of flycatchers appears to be the one thing that makes their service questionable. However, "weighing as impartially as possible the injuries done and the benefits conferred by them, their good qualities outweigh the bad."

The tables giving a summary of the results of the stomach examinations furnish an interesting comparison of the food of the different species. The long lists of identified insects show careful and painstaking work. Although these lists may be overlooked by most of the farmers reading the bulletin, they give the publication a more permanent value than it would otherwise have.—H. C. BRYANT.

A HISTORY OF THE GAME BIRDS, WILD-FOWL AND SHORE BIRDS OF MASSACHUSETTS AND ADJACENT STATES, by EDWARD HOWE FORBUSH, State Ornithologist of Massachusetts. (Issued by the Massachusetts State Board of Agriculture.) 1912; 8 vo, pp. xvi+622, 36 pls., 26 figs.

Of great immediate, practical use in the swelling campaign against the extermination of American game animals, the book under notice deserves warmest commendation. Its purpose is admirably realized in the scientifically accurate tenor of treatment throughout, combined with the logical and convincing sequence of the subjects as presented.

Here we find just the information needed in regard to the history and in some cases direful fate of Atlantic Coast game birds, and from which lessons can be drawn as to how not to treat our Pacific Coast birds. It is too bad that it is impracticable to secure wide distribution in the west, of Mr. Forbush's work, because of the limited edition and local demands for it. If sportsmen and legislators could but acquire some of the knowledge therein made so clear, a long step would have been taken towards securing proper treatment of our game before it is too late.

It is not possible to adequately describe the book in its numerous useful details, in our limited space; but some of our readers may be interested to know that, as long as they last, copies can be purchased at bare cost price plus postage (\$1.40 in all) by addressing the Secretary of the State Board of Agriculture, 136 State House, Boston, Mass.—J. GRINNELL.

THE PHYLOGENETIC VALUE OF COLOR CHARACTERS IN BIRDS. BY WITMER STONE, A. M.

(Journ. Acad. Nat. Sci. Phila., 2nd ser., xv, Dec. 4, 1912, pp. 313-319, pl. 27).

This brief paper is a *multum in parvo* of first-grade philosophic ornithology. We have of late heard a great deal about the meaning of coloration. Mr. Stone recalls the reader's attention from the various concealing and direct-action-of-environment theories, and invites him to consider some facts more easily explained upon grounds of directive or phylogenetic significance.

Whole groups—genera and even families—of birds possess certain color patterns which occur but slightly modified throughout their members. Other features come and go, but a certain color pattern may persist, to no apparent adaptive purpose. Such a feature surely does show community of descent as much as, and in certain cases, more than does position of nostril or proportions of mandibles.

Attention is called to the over-emphasis often given such "structural" characters as compared with color features, this undue emphasis to be observed in parts of our modern schemes of classification. In some cases it is shown that color features prove more dependable taxonomically than the structural characters currently recognized. But the author refrains in this paper from any specific attempt at revising classification.

Mr. Stone shows convincingly that an extremely promising line of investigation awaits the student who will make a special study of the colors and color-patterns of birds, with problems of genetic relationship in view. The reviewer is not, however, quite ready to agree with Mr. Stone that there is more need of search in the direction of resemblances than in that of minute differences. *Both* are of great value, and equally important, though not necessarily of the same sort of meaning. The well-balanced student will neglect neither.—J. GRINNELL.

THE EXPERIMENTAL METHOD OF TESTING THE EFFICIENCY OF WARNING AND CRYPTIC COLORATION IN PROTECTING ANIMALS FROM THEIR ENEMIES. By W. L. McATEE (Proc. Acad. Nat. Sci. Phila., LXIV, September 6, 1912, pp. 281-364).

This work, reviewing critically the literature of such experimentation, is indispensable to students of protective coloration. The main point emphasized, backed up by abundant evidence, is the danger of drawing conclusions from experiments upon animals in captivity, unless the results are carefully compared with what is known about the habits of the same animals under natural conditions. The evidence seems conclusive that animals in captivity do not re-act to the stimu-

lus of food as they do in a wild state. Hence the fact that a given animal is indifferent to, or even rejects, a certain species of insect when in captivity, by no means indicates that it would be indifferent to or reject the same species under natural conditions. Indeed, it has been definitely shown that many "disregarded" and "rejected" species are actually taken by wild animals of the same species as those experimented upon.

The whole doctrine of warning colors and mimicry is built upon the presumption that the species mimicked is disagreeable or dangerous, and hence under the law of natural selection the mimicking species has come to assume the same colors as the one mimicked; this presumption is in many cases unsupported by any evidence, and in many other cases is quite contrary to the known facts. Dr. McAtee's conclusion is that since acceptance or rejection of food in captivity bears no close relation to food preferences under natural conditions, the value of experiments upon captive animals to determine the efficiency of warning colors and other protective adaptations in their insect food is very questionable. It should be checked up with such definite knowledge of the natural food as is obtained by the examination of contents of stomachs or other portions of the alimentary canals. He clearly shows that many species which have been considered to be protected by noxious secretions or other adaptations are not really so protected, a conclusion supported not only by the definite evidence produced by Dr. McAtee, but also by the fact that if such species were not preyed upon by various enemies they would soon people the whole earth. Whether the reader finally agrees with Dr. McAtee or not, he will find in this timely paper much information and food for thought, and by having read it will be better prepared for intelligent consideration of the subject. By no means the least valuable feature of it is the series of bibliographies occurring at intervals under the proper sub-headings.—JUNIOUS HENDERSON.

CONTRIBUTIONS TO AVIAN PALAEONTOLOGY FROM THE PACIFIC COAST OF NORTH AMERICA. By LOYE HOLMES MILLER (Univ. Calif. Publ. Geol., vol. 7, no. 5, October 12, 1912, pp. 61-115).

The present paper is a detailed summary of our knowledge to date of the fossil birds of the Pacific coast. The accompanying bibliography shows that there have been published eleven separate papers relating to this field of ornithology. By far the most important of these are obviously those of Miller himself who has been fortunate in having full access to the rich material accumulated under the

direction of Dr. J. C. Merriam in the department of palaeontology of the University of California.

Of the eight localities on the Pacific slope, in which fossil birds have been found, six are in California. The most notable of these localities, the now famous Rancho la Brea, near Los Angeles, has produced no less than forty-nine species of birds, with promise of further discoveries as excavations there are continued in the future.

Miller's present contribution includes an account of each of the fossil faunas, with lists of the species known from each. Past distribution as thus shown in the regions concerned is compared with present day conditions. Various lines of evidence point towards a Pleistocene climate of higher temperature and greater humidity than now.

The Pleistocene avifauna contained several types of birds not now found north of South America. There appears to have been a retraction in the ranges of these types to the southward. There were many more species of eagles and vultures in California in Pleistocene times than now.

Among causes of the extinction of raptorial species Miller considers as of probable importance, the disappearance of forests and luxuriant meadow vegetation, and the great reduction in the population of herbivorous mammals. J. C. Merriam's studies indicate the disappearance of many species of carnivorous mammals at about the same time with the raptorial birds now extinct. Dr. Miller believes the coincidence significant of dependence of the scavenging birds upon the beasts of prey, in that the former fed largely upon the discarded kills of the latter.—J. GRINNELL.

AN INVESTIGATION CONCERNING THE FOOD OF CERTAIN BIRDS. By JOHN HAMMOND, B. A. (Journal of Agricultural Science [Cambridge], June, 1912, 4, pp. 380-409).

As a further contribution to a knowledge of the food of the birds of England has come a paper entitled "An investigation concerning the food of certain birds" by John Hammond. This paper gives some of the results of an investigation instituted by Professor Wood and Mr. Warburton of the School of Agriculture, Cambridge, "to determine whether or not certain birds were harmful to agriculture." The method adopted in the investigation was "the examination of stomach contents, together with a collection of field notes concerning each bird."

In beginning the investigation the following points were taken into consideration:

(1) That the examination of the stomach contents ought to be continued throughout the

year, as the conditions (harvest, seed-time ploughing, etc.) would vary considerably.

"(2) That the district from which the birds to be investigated come should be extensive but not too wide. If all were taken from a small area, local conditions would be too prominent: whereas, if birds were obtained from the whole of Great Britain, the variations in climate (and consequently in dates of seeding and harvest) would prevent a clear idea being obtained of the changes in the food materials that occurred from month to month.

"(3) That field notes ought to be taken when the birds were killed, the following facts being mentioned: (a) name and address of sender, (b) date and time of day, (c) exact locality in which the bird was killed, (d) weather, on account of its influence on insect life, (e) special notes, if the bird was doing any particular injury."

A distinct advance in method over previous work can be seen in the attempt to determine the food for the whole year by making collections of birds in the same general locality each month of the year. Although birds were collected where found feeding, attention is given the character of the place where the bird was collected, thus emphasizing the availability of certain kinds of food.

The food of the starling (*Sturnus vulgaris*) and of the lark (*Alauda arvensis*) is given in detail. The final verdict as to the economic value of the starling is as follows:

"(1) The starling is very beneficial during the late spring, summer and early autumn months, eating many harmful insects although a number of beneficial ones are also destroyed.

"(2) During the autumn, and to a less extent in the spring, much harm is done by the consumption of seed corn (particularly wheat); many harmful insects, however, are also destroyed during this period.

"(3) Owing to the fact of the bird's autumn and spring migrations, the remedies suggested are, either (i) to dress the seed corn with something that renders it distasteful to birds; or (ii), if suggestion (i) cannot be carried out successfully, to kill off the autumn migrants in large numbers."

The following conclusion is reached in regard to the lark: "On the whole the lark is beneficial; but, owing to the injuries done at certain times of the year, there is no reason why it should be specially protected, although its wholesale slaughter is to be deprecated."

A table showing the results of the stomach examination of various other birds, which were obtained in insufficient number "for an opinion to be expressed as to their utility," is added. A "List of References" gives a num-

ber of the important European publications on the food of birds.

In this paper there appear several original ways of tabulating results. One table gives the number of birds collected each month and the exact locality in which they were collected. A second table gives the date, time, place, locality, weather and sex, and tabulates the different kinds of food under the headings injuries, benefits, and neutral. A third tabulation groups seeds, vegetation, etc., insects, etc., and miscellaneous food under these same headings giving the "times occurred" and "number occurred." The material grouped in this way has been mounted on cardboard. To the student, but perhaps to a less extent to the farmer, this method presents vividly the economic aspect of each meal. As a method of preserving the material permanently, it has disadvantages as compared with the "vial" method.

A fourth table presents data from the standpoint of the food articles. It gives the percentage of times each article of food has been taken by the birds examined. A description of the food taken each month brings out clearly the change in food-habits from one part of the year to another and so emphasizes the necessity of a study of the bird's food the year through.

Perhaps the greatest criticism that can be offered is that against the use of the numerical method. To say that five out of twenty birds, or 25 per cent, ate carabid beetles hardly gives us a clear knowledge of the relation of this particular diet to the whole food or the bird's relative taste for carabid beetles. The percentage-by-bulk method used by the U. S. Biological Survey comes nearer showing the relative importance of the food elements. The value of the numerical method as a guide to the actual destruction accomplished, however, is self evident. A combination of both methods doubtless comes nearest the common aim—"interpretation of economic values."—H. C. BRYANT.

BIRDS IN RELATION TO A GRASSHOPPER OUTBREAK IN CALIFORNIA. By HAROLD C. BRYANT (Univ. Calif. Publ. Zool., xi, November 1, 1912, pp. 1-20).

In July, 1912, a plague of grasshoppers was reported from the vicinity of Los Banos, Merced County, California. The author visited the locality and spent a week there in studying the possible bearing of the native bird-life upon the insects. The present paper is occupied with an account of the observed facts, together with some general remarks upon the relation of birds to insect outbreaks.

It was found that at least fourteen species

of birds were feeding extensively upon grasshoppers. Taking into account numbers of individuals as well as destructive capacity of each species, the relative importance of the five ablest destroyers was as follows: (1) Bicolored Blackbird, (2) Western Meadowlark, (3) Killdeer, (4) Bullock Oriole, and (5) California Shrike.

It is shown that with abnormal increase of such an insect as the grasshopper, many birds appropriate this food source for the time being, and at once factor in checking the outbreak. The principle is emphasized that birds turn to the sort of food most readily available. While figures are given which show conclusively that the birds of the region could not have controlled the plague after once well under way, the author reasons by inference that many incipient insect outbreaks may be checked by birds at the outset, so that they never reach a point where great damage results. In the Los Banos outbreak, the insects had become so abundant locally that the birds when under observation made no noticeable headway against the pests from day to day; but it was possible to figure the value of the birds in hastening the end of the insect raid, and even in lessening the amount of aggregate damage sustained at the time.

Mr. Bryant's paper is commendable in its accurate detail of fact. More particularly is it admirable in the calm and judicious mode of drawing inductions. There is no discordant note of sentimentality to mar the paper as a scientific contribution.—J. GRINNELL.

A REVISION OF THE FORMS OF THE GREAT BLUE HERON (*ARDEA HERODIAS* LINNAEUS). By HARRY C. OBERHOLSER (Proc. U. S. Nat. Mus., vol. 43, December 12, 1912, pp. 531-559).

In this treatment of the Great Blue Heron ten geographical races are recognized, four of them being first described here. Descriptions, critical comments, and other details of the work are presented with all the painstaking care and accuracy characterizing previous contributions of the author, whose series of studies of various difficult groups forms such a valuable portion of the ornithological literature of recent years.

The paper under consideration is of especial interest to California ornithologists, in that two of the new subspecies described are from this state. *Ardea herodias hyperonca*, type locality Baird, California, is the name applied to the form inhabiting California in general, excepting the southeastern desert region and the Santa Barbara Islands. *Hyperonca* is distinguished from the Eastern *A. h. herodias* by its greater size alone, being exactly similar in color; as the much paler colored *treganzai* occupies the desert and Great

Basin regions intervening between the habitats of *hyperonca* and *herodias*, it is quite logical to recognize in nomenclature the differences between the two latter forms.

As much cannot be said of the island subspecies described. The characterization of *Ardea herodias oligista* is based upon a single immature bird from San Clemente Island, and such sweeping generalizations are made from the weak basis afforded by this one specimen that it almost appears that the author is giving expression to a preconceived belief that there *should* be a separate island subspecies, rather than to a dispassionate exposition of what his material actually reveals.

The only difference claimed for the island race is its smaller size. Coloration is declared to be the same as in the mainland form *hyperonca*. The one specimen available, though admittedly an immature bird, is said to be "evidently full grown". From the date of capture, August 26, this may, perhaps, be questioned. At any rate it is unfortunate that the only character ascribed to the race is one that might be explained by the immaturity of the single specimen examined. The subspecies described upon the strength of this one young bird from San Clemente Island is given a range including "Santa Cruz, San Nicolas, Anacapa, Santa Catalina, and probably other islands of the group", although certain of these islands have as little in common with one another as they have with the mainland.

We are also told that "this race is probably confined to the Santa Barbara Islands, as the species is said to be resident there". Just what grounds there are for the latter assertion is not apparent, and it is doubtful if the statement could be proved. The islands are such a short distance from the mainland that the intervening channels can be but inconsiderable barriers to a strong flying bird like the Great Blue Heron. In the present paper (page 536) we are told of a specimen of *A. h. herodias* taken at sea about 130 miles off the coast of New Jersey! Furthermore, a favorite feeding ground of the herons about the islands is on the extensive beds of floating kelp, which support the birds easily, and form convenient resting places at short intervals, should any such be required.

Altogether, even conceding the possibility of the existence of a race of *Ardea herodias* confined to the Santa Barbara Islands, we cannot admit it to be proved, nor even demonstrated to be reasonably probable, in the paper under discussion, while there are many facts that argue against it.

The description of the subspecies *oligista* seems ill considered, and is an undoubted blemish in what appears to be in other respects an excellent piece of work. It would

have been quite sufficient to have pointed out the peculiarities of the specimen at hand, and left to future workers the task of determining their meaning.—H. S. SWARTH.

## MINUTES OF COOPER CLUB MEETINGS

### SOUTHERN DIVISION

OCTOBER.—The October meeting of the Southern Division of the Cooper Ornithological Club was held on October 28, 1912, at the residence of Dr. Loye Holmes Miller, 6066 Hayes Avenue, Highland Park, California. On motion duly made and seconded, Mr. Daggett was elected Temporary Chairman.

The following members were present:—Mrs. Harmon and Messrs. Chambers, Daggett, Layne, Howell, Miller, Myers, Rich, Tracy, van Rossem, Willett, Zahn and Law; and, as visitors, Mrs. Loye Holmes Miller, Mrs. Tracy, and the Misses Van Deusen.

The minutes of the September meeting were read and approved. Upon motion by Dr. Rich, seconded by Mr. Willett and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership, Messrs. Alfred Cookman, Wilson P. Gee, Forrest S. Hanford, Hans Hochbaum, Morris Johnson, Pierre E. Letchworth, Jr., John N. Loshinski, and E. W. Merrill, proposed at the last meeting.

Applications for membership were presented as follows: Albert L. Barrows, 1430 Arch St., Berkeley, Calif., proposed by H. C. Bryant; James H. Gaut, 219 Chamber of Commerce Bldg., Pasadena, Calif., proposed by A. B. Howell; Hilda Wood Grinnell, 2543 Durant Ave., Berkeley, Calif., proposed by J. Grinnell; J. Gregg Layne, 128 S. Normandie Ave., Los Angeles, Calif., proposed by J. E. Law; W. A. Squires, 1137 E. Miner Ave., Stockton, Calif., proposed by W. Lee Chambers; Edward Wall, San Bernardino, Calif., proposed by A. B. Howell.

The Secretary read an answer from the Northern Division, to our letter of inquiry in regard to the expense of the California Associated Societies for the Conservation of Wild Life, which was referred to the appropriate Committee.

The Secretary then read the finding of the Committee appointed to investigate the charges against Pingree I. Osburn, with the recommendation that he be expelled from the Club. Upon motion by Mr. Zahn, seconded by Mr. Miller and duly carried, the report of the Committee was accepted, and the Secretary instructed to notify Mr. Osburn of the charges and that he would be given an op-

portunity at the next meeting to refute same.

The Secretary then read J. Grinnell's paper on the Band-tailed Pigeon which excited much interest.

After adjournment those present partook of refreshments and hob-nobbed about Mr. Miller's beautiful Arroyo Seco home. Mr. Miller has built his home on the very brink of the great Arroyo Seco so that he can look down on the tops of the highest sycamores within a stone's throw. It is an ideal spot in which to study birds.—J. E. LAW, *Secretary*.

NOVEMBER.—The November meeting of the Southern Division of the Cooper Ornithological Club was held on November 27, 1912, at the Museum of History, Science and Art, Los Angeles. On motion duly made and seconded, Mr. Willett was elected temporary Chairman.

The following members were present: Messrs. Chambers, Daggett, Howell, Kimball, Layne, Linton, Rich, Robertson, Willett, Zahn, Law.

The minutes of the October meeting were read and approved. Upon motion by Mr. Robertson, seconded by Mr. Rich and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership, Messrs. Albert L. Barrows, James H. Gaut, J. Gregg Layne, W. A. Squires and Edward Wall, and Mrs. Hilda Wood Grinnell.

Applications for membership were presented as follows: Mrs. Eugene Overton, 651 W. 23rd St., Los Angeles, Calif., proposed by George Willett; Mrs. Edwin H. Husler, 434 W. 20th St., Los Angeles, Calif., proposed by George Willett; Mrs. F. B. Bicknell, 419 N. Broadway, Los Angeles, Calif., proposed by F. S. Daggett; W. B. Bell, Agricultural College, North Dakota, proposed by Vernon Bailey; Frank C. Clarke, 218 East Hall, University of Calif., Berkeley, Calif., proposed by H. C. Bryant; Alf. Eastgate, Tolna, N. Dak., proposed by Vernon Bailey; Joseph A. Sweeney, Reville, N. Y., proposed by W. Lee Chambers.

Upon motion duly made and unanimously carried, the report of the Committee appointed to investigate the charges against Mr. Pingree I. Osburn, was accepted and ordered filed. Mr. Osburn was ordered expelled from the Club and his name stricken from the rolls.

A letter from Mr. Frank Stephens, thanking the Club for making him an honorary member was read.

Upon motion made by Mr. Robertson and seconded by Dr. Rich, and duly carried, the action of the Northern Division in regard to the Pacific Association of Scientific Societies as to annual meeting and other matters, was approved.

The Secretary then read three notes by Dr. L. H. Miller on recent taking of Bendire Thrasher, Rocky Mountain Pinyon Owl and Alaska Hermit Thrush in the vicinity of his South Pasadena home. Adjourned.—J. E. LAW, *Secretary*.

#### NORTHERN DIVISION

NOVEMBER.—The regular monthly meeting of the Northern Division was held at the Museum of Vertebrate Zoology, Saturday evening, November 16, with President Coggins in the chair, and the following members present: Messrs. Bryant, Carriger, Coggins, Chandler, Grinnell, Heinemann, Lamb, Joseph Mailliard, Shelton, Stone, Smith, Swarth, and Taylor. Mrs. Grinnell, Mrs. Taylor and Mrs. Swarth were present as visitors.

The minutes of October meeting were read and approved, followed by the reading of the Southern Division minutes for October. New members were elected as follows: Hilda Wood Grinnell, A. L. Barrows, H. Hochbaum, A. Cookman, P. E. Letchworth, Jr., E. W. Merrill, and W. A. Squires. New names presented for membership were: J. A. Sweeney, Reville, New York, proposed by W. Lee Chambers; J. H. Gaut, Pasadena, and E. Wall, San Bernardino, proposed by A. B. Howell, and J. G. Layne, Los Angeles, proposed by J. E. Law.

A communication was read from the secretary of the Pacific Association of Scientific Societies, requesting information as to the date and locality preferred by the Cooper Club for the next meeting of the Association, to be held during the spring of 1913. Berkeley had been suggested as a desirable place for the meeting, and various dates in March and April, as the time. Berkeley was acceptable to the Club as the place for the meeting, and after some discussion it was decided that any of the dates in April (4th and 5th, 11th and 12th, or 18th and 19th) would be satisfactory, and the secretary was instructed to notify the secretary of the Association accordingly.

A letter from Mr. Frank Stephens was then read, expressing his appreciation of the action of the Club in electing him to honorary membership. The next order of business was the reading of the report of the committee appointed by the Southern Division to investigate the charges brought against Pingree I. Osburn, and on which the Southern Division based its action expelling Osburn from the Club. It was decided that the Southern Division was fully justified in pursuing the course followed, and the expulsion of this member was accordingly approved.

Mr. W. P. Taylor, chairman of the conservation committee, reported upon the organization meeting of the California Associated Societies for the Conservation of Wild Life. The actions of the committee, as outlined by Mr. Taylor, were fully ratified by the Club.

Business matters being disposed of, Mr. Mailliard, the first speaker on the program, opened a "discussion of oology", which was warmly taken up by several members present.

Mr. Taylor followed with a review of W. L. McAtee's paper on "The Experimental Method of Testing the Efficiency of Warning and Cryptic Coloration in Protecting Animals from their Enemies", this talk being largely in rebuttal of Mr. E. W. Gifford's arguments in favor of experimental work, as given in the last (October) meeting of the Division. Adjourned.—H. S. SWARTH, *Secretary*.

DECEMBER.—The monthly meeting of the Northern Division was held at the Museum of Vertebrate Zoology, Saturday evening, December 21, with vice-president Carriger in the chair and the following members present: Mrs. H. W. Grinnell, and Messrs. Bryant, Carriger, Grinnell, Heinemann, Miller, Ray, Storer, Swarth, and Taylor. Mrs. Taylor attended as a visitor.

The minutes of the November meeting were read and approved. The following were elected to membership in the club: J. A. Sweeney, Reville, New York, J. H. Gaut, Pasadena, E. Wall, San Bernardino, and J. G. Layne, Los Angeles. New names were proposed as follows: O. P. Silliman, Castroville, California, presented by W. Lee Chambers, and M. B. Rice, Cascadia, Oregon, presented by W. L. Finley. The resignation of E. W. Gifford was read and accepted.

Several matters of club business were then discussed and disposed of as follows: The secretary was instructed to send to the business manager the accumulation of Northern Division correspondence and other papers, which could thus be given more secure storage, together with the other club documents. The time of the Northern Division meeting was changed from the third Saturday to the third Thursday of each month.

The nominations of officers for 1913 gave the following results: President, H. W. Carriger; Vice-president, H. C. Bryant; Secretary, H. S. Swarth.

Two papers were presented. T. I. Storer reviewed Headley's recent book on "The Flight of Birds", and H. C. Bryant gave briefly some of the results of his investigation into the food habits of the Western Meadowlark. Adjourned.—H. S. SWARTH, *Secretary*.

**For Sale, Exchange and Want Column.**—In this space members of the Cooper Club are allowed one notice in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, *Eagle Rock, Los Angeles County, California*.

WANTED.—Nidologist, vol. I, no. 1, 2, 4, 5, 6, 8, 10, 11; vol. II, no. 2, 8, 11; vol. III, no. 1; vol. IV, no. 9; Osprey, new series, vol. I, no. 4, 5. O. WIDMANN, 5105 Von Versen Ave., St. Louis, Mo.

FOR SALE.—First four volumes of *The Condor*, including the rare "Bulletin."—F. S. DAGGETT, 2833 Menlo Ave., Los Angeles, Calif.

FOR SALE.—Clean copies of Bulletin Cooper Club, vol. I, nos. 1, 2, 5; *The Condor*, vol. 2, no. 4, vol. 4, no. 6. Best offer takes them.—J. H. CLARK, Paterson, New Jersey.

WANTED.—Sets of eggs of Canyon Wren, Dotted Canyon Wren, Wren-Tit, and Hammond Flycatcher; Bird-Lore, vol. X, single nos., vol. VII, no. 1, cash or exchange for Magazines.—C. M. CASE, 7 Holcomb St., Hartford, Conn.

WANTED.—To hear from collectors who have sets with cowbird eggs in them. Who wants skins of the Wild Turkey 310 A? Last year I put up ten. I need many of the small, common sets with nests, Canada Jay, Northern Raven, Audubon Oriole and nest, Cooper Tanager, Warbling Vireo and nest, numerous Warblers, San Lucas, Mearns and Leconte Thrasher, and Varied Thrush and nest. Sets or skins for same, Ridgways B. of N. & M. Am., 1 to 5 inc.—H. H. BAILEY, Newport News, Va.

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WANTED.—Wilson Bulletin 2,4; The Oologist, Utica, N. Y., vol. I, complete; II, 1, 2; III, 8, 9; IV, complete; V, complete; Bulletin of the Cooper Ornith. Club, vol. I, odd nos. W. LEE CHAMBERS, *Eagle Rock, Los Angeles Co., Cal.*

WANTED FOR CASH.—Complete set or parts of *The Condor*, Oologist, Bird-Lore, Wilson Bulletin, Ornithologist & Oologist and *The Condor*, vols. I to X, inc.; Am. Ornithology, Birds, Birds and Nature; also books by Coues, Torrey, C. C. Abbott, Keyser, Mrs. Bailey, Ridgway, N. S. Goss. J. W. SWIFT, *Stockport, Ohio*.

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WANTED.—The Utica (N. Y.) Oologist, vol. I complete, and nos. 1 and 2 of vol. II. For these I will pay the very highest cash price. If you can furnish all or any of these, write me at once.—R. M. BARNES, *Lacon, Ill.*

WANTED.—Live bats for photographing and study. If you know of any colonies, correspond with:—J. GRINNELL, *Museum of Vertebrate Zoology, Berkeley, Calif.*

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# THE **C**ONDOR

A Magazine of Western  
Ornithology



Volume XV

March-April, 1913

Number 2



COOPER ORNITHOLOGICAL CLUB



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## THE DUSKY WARBLER

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## THE NESTING OF THE PRAIRIE FALCON IN SAN LUIS OBISPO COUNTY

By WILLIAM LEON DAWSON

WITH FIVE PHOTOS BY THE AUTHOR AND ONE DRAWING BY ALLAN BROOKS

THE 'problem of evil' has always bothered the theologian, and he is bound to wrestle with it, because inconsistency is intolerable in religious thinking. But the bird-lover cannot be consistent. Within his little province he cannot "love good and hate evil", for to do so were to lose that *joy in variety* which is his endless delight. Nature herself is inconsistent—fearfully so. Indeed, it is she who has set theology's problem. And if there be a "higher unity" or "religious synthesis" (and I believe there is) we as nature students have naught to do with it. If we are to find satisfaction in things as they are, if we are to enjoy nature, external nature, we must surrender ourselves to admiration of beak and talon no less than of wing and song. We may champion the cause of our specialty—Birds against the world, if you like, and death to cat, weasel, and serpent—but you cannot adjudicate as between magpie and chick, hawk and sparrow, raptor and raptee. Or if you do, you will only make yourself miserable, and wherefore?

All of which is artful preface to a declaration of love for that arch scamp and winged terror, the Prairie Falcon (*Falco mexicanus*). Ruthless he is, and cruel as death; but ah, isn't he superb! To recall his image is to obtain release from imprisoning walls, glad exit from formal gardens and the chirping of sparrows. To recall his scream is to set foot on the instant upon the bastion of some fortress of the wilderness. Away with your orange-bowered bungalows! Give me a sun-burned battlement in the hills of San Luis Obispo County. A plague on your dicky birds! Let me dare the displeasure of the noble falcon as he falls like a bolt from the avenging blue and shrieks out his awful rage.



Fig. 9. REGARDANT

Redrawn by Allan Brooks after photo by W. L. Dawson

Curse for curse and blow for blow, you jolly old pirate! Hide your treasures in the remotest cranny of the uttermost wilderness, if you will, and I shall find them; and if I find them, they are mine; and if I reach them, you may wreak your vengeance on whom you will. I will not even reproach you for the rape of pullets nor the carnage of quails. Go to it, old sport! Fill the air with shrieks and call heaven to witness what a rogue you are! Aye, but you're a gay fowl, and I'm o'er fond of you!

The first requirement of the Prairie Falcon is open country; and the second a cranny where she may lay her young. These conditions are ideally met in a low range of hills which run north and south through eastern San Luis Obispo County, and form the back-bone of that "cattle country" made famous in story and song by deeds of vaquero and misdeeds of brigand. To the westward lie other rolling hills carpeted with bunch grass and dotted with oaks. To the eastward stretches the arid interior plain. This cardinal ridge, by reason of the

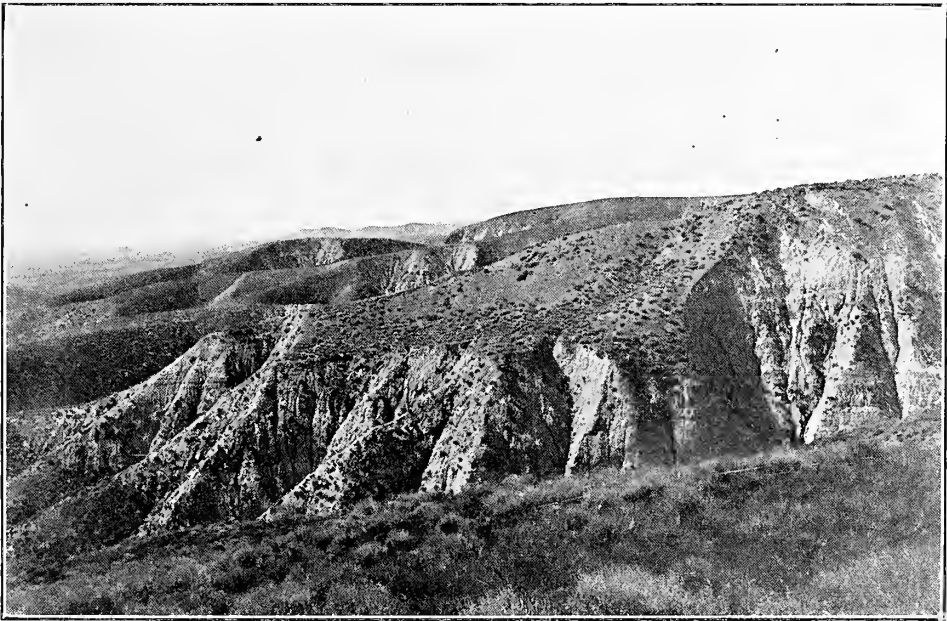


Fig. 10. A NESTING HAUNT OF THE PRAIRIE FALCON

torrential character of the occasional rains of that country, is deeply scored by lateral canyons, and "breaks" in a thousand walls, walls which vary in appearance from the sloping adobe of the north to the rugged escarpments of sandstone, conglomerate, and Pecten beds, which front the upper San Juan. Here are the castles, and there are the banquetting tables. For the presence of cattle means insects, and insects imply insect-eating birds, and *Insectivores* mean *Raptors*. If we use birds-of-prey in the economic instead of the structural sense, and so include Magpie, Raven, and Shrike, then this cattle country is ravaged by no less than 23 species of feathered bandits (and ghouls); and of these we actually saw nineteen in the course of a three weeks' reconnoissance last April.

Of *Falcones* proper, after the ubiquitous Kestrel (why "Sparrowhawk"?), the Prairie Falcon is most numerous in fact and least evident to casual notice. It is his proper domain, but he rules it invisibly, from on high. His business with

earth is quickly despatched, and he is off again, while the slow eye, especially of the breeder of hens, settles upon the soaring Buteo as the presumptive culprit. While his visits to the poultry yard are by no means rare, and his offenses, judged from this narrow human angle, are serious, we shall not stop to plead the thousands of destructive squirrels which this bird accounts for, but only hasten on to view him, or rather her, at home.

The first scene is a wild adobe amphitheater, the most distant in the "general view" herewith presented. A few shrubs manage to cling to the upper reaches of the great earthen funnel; but as the walls descend the pitch increases,



Fig. 11. CAUGHT AT HOME: FEMALE PRAIRIE FALCON  
AT MOUTH OF NESTING CRANNY

until the vortex, 400 feet below, is fronted by walls perpendicular, or even undercut. Here at a point midway of the basal wall, Truesdale's practiced eye discerned a Prairie Falcon squatting upon a shady shelf. I stood on the very uppermost brim of the funnel whose edges fell away sharply on either hand, and from my station it did not seem that a bird could find footing, let alone lodgment, on the wall against which this Falcon had set herself. Yet a determined facing of the problem of approach brought a sure solution. We set an iron peg down some forty feet over the brim, then made fast and cast off the 60-foot rope with which we were provided, and found that it thus exceeded the nest by fifteen feet. To have

gone down from above would have meant some risk, as well as an accompaniment of blinding dust, so "Kelly" made a detour and attacked from below. By dint of carving steps with a hammer he succeeded at last in clutching the dangling rope-end, and so reached the coveted shelf. The Falcon meanwhile made the great amphitheater resound with malediction, and charged about in a fashion to make the beholder dizzy as he watched her passage across the fluted background. Her anger made our visit memorable, but it failed to arouse her mate, who was doubtless off hunting in the basin country.

Though slow to take alarm, the Falcon once roused from the nest becomes very wary. It was doubly fortunate, therefore, that the bird photographed in one accompanying picture could be approached under cover, and suddenly confronted from a convenient spur just opposite. To reach this nest our intrepid guide, Dean Brown, went down hand over hand the full length of a 140-foot

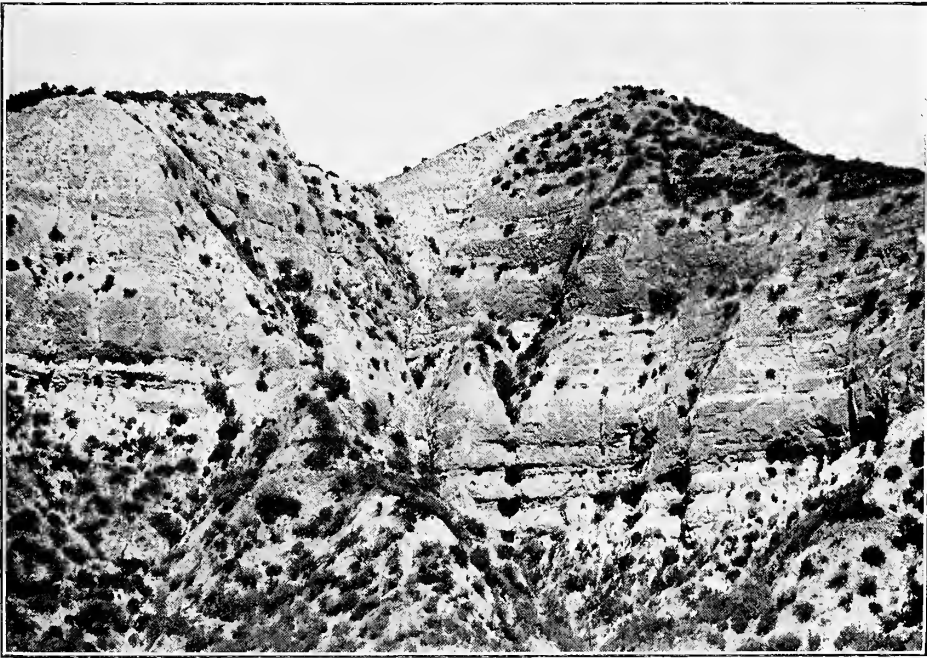


Fig. 12. A TYPICAL NESTING CLIFF; X INDICATES POSITION OF CLIMBER

rope. A bird who knows she is under surveillance will never resume a position on the eggs; but she will intersperse her nervous and often distant excursions by prolonged rests on some favorite perch or commanding knob. And this she is the more ready to do if the observer himself remains quiet. A resumption of hostilities sends her off on the instant to scream and soar or tower and stoop.

In about half the cases noted the male bird, who was in no instance the sitter, responded to the summons of his mate and joined in the outcry. He was quite as loud, but not quite so persistent in denunciation as the female; and I could not detect any difference in the notes as between the sexes, such as exists in the case of the American Peregrine (*Falco peregrinus anatum*).

The assaults of an angry Falcon are really dangerous. Even when the earliest efforts are discouraged by a show of stick or stones, it is decidedly disconcerting to feel the rush of air from a passing falcon-wing upon your hatless

pate, or to mark the instant change in pitch from the shrill uproar of impending doom to the guttural notes of baffled retreat. The Falcon has a nasty temper at best, and if she dare not vent her spite on you, she will fall upon the first wight who crosses her path. Woe betide the luckless Barn Owl who flaps forth from his polluted den hard by to learn the cause of the disturbance. I have seen such bowled into the sage in a trice, and Kelly declares that he has several times seen them struck dead. At such times also the Raven is put on trial for his life. In spite of their close association, there is evidently an ancient grudge between these birds. Whether or no the ebony saint be at fault, I cannot tell, but certain it is that if a Raven blunders near in the hour of the Falcon's high displeasure, he is fearfully beset. The Raven is an adept at wing-play himself, and the Falcon's thunderbolt is met with a deft evasion which reminds one of the best sword-play.



Fig. 13. PIRATE OF THE CLOUDS

But the Raven takes no pleasure in it. His eyes start with terror, and while he has no time for utterance himself, the distressed cries of his mate proclaim the danger he is in.

This close association of Falcon and Raven at nesting time is the strangest element in the lives of both of them. To be sure their requirements of nesting sites are similar; but it is more than that which induces the birds to nest within a hundred yards of each other in the same canyon, when neighboring or distant canyons offering as excellent sites are empty. So constant indeed is this association that when one finds the Raven's nest, he says, "Well, now, where is the Falcon's?" Of the entire number of Raven's nests which came under my personal notice this year, seven were thus associated with the Falcons in the same canyon, and the remaining three were within a quarter of a mile of Falcon's in neighboring canyons separated by a single ridge. And it is impossible to tell

from the stage of incubation reached which bird is the follower. In two instances, nests containing young Ravens were associated with Falcons whose eggs had not yet hatched; but in another notably close instance, the Raven laid her first egg on the day the Falcon's eggs were pipped. The remaining instances were neutral; i. e., nests of both species contained eggs. The only guess we dare hazard is that both birds reap advantages of warning in case of hostile approach.

Concurrent with this association is the annual, or at least occasional, shifting of sites on the part of both species. This shifting is of course quickened by persecution. If unsuccessful in raising a brood one year the bird will try another situation, but always, except in extreme instances, in the same canyon or general locality. In this way the Falcon appropriates the site once occupied by Ra-

vens (and so gets credited with a "stick" nest, though I am satisfied that the Falcon never lifts a twig); and the Ravens, in turn, without opposition, are allowed to rear their pile in a niche just previously occupied by the Falcons. The ruses adopted by birds hard pressed are sometimes humorously pathetic. A Falcon which last year occupied the front of a noble escarpment in a wild valley (and forfeited four clouded beauties thereby), was found this year after a lengthy search, in a tiny niche once occupied by a Road-runner, on the back, or hill-facing side, of a minor sandstone tooth, and not over twenty feet from the ground. The retreat had been betrayed by an incautious line of white excrement, and the occupant, when summoned by a shout from the triumphant Kelly, looked

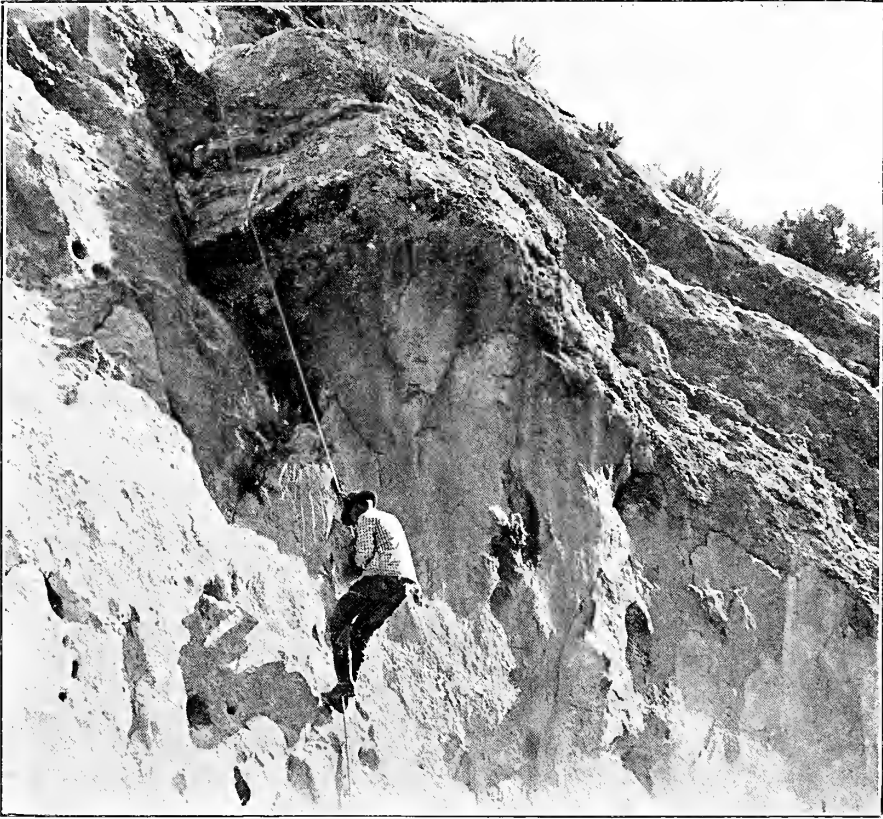


Fig. 14. AN EASY DESCENT; NEST IN CRANNY A LITTLE ABOVE CLIMBER

the very picture of disgust and chagrin. She was mad all through, too disgusted for utterance, and she sat glooming upon the edge of the nest until we drew very near. When she flew she gave vent to the usual number of futile expletives, whereupon the male joined her and gave us a double blessing.

Choice of sites varies from "potholes" and crannies to more pretentious caves or even open ledges. A south exposure is oftenest favored and there seems to be no particular effort on the part of the sitting bird to avoid the glare of the sun. Unseasonable rains, however, do sometimes cause her discomfort, and more rarely, loss.

The first two weeks in April are the golden weeks for Falcon nesting in the cattle country. Evidently many sets are complete by April first, for we found

one far advanced in incubation on the 19th, and another hatching on the 22nd. If robbed early in the season, second sets are almost invariably laid in a new but closely related situation.

Probably none but the few elect would enjoy a rhapsody on color variation in Falcons' eggs, and the non-elect would raise holy hands of horror over the thwarted hopes of these feathered brigands. So be it then, and suffice to say that neither Brooks nor Fuertes can paint a bird with such bewitching grace as Nature herself displays in the lawless tinting of a Falcon's egg. She (*varium et mutabile semper femina*) dips her brush in oorhodeine and she feathers and stipples or twirls and scumbles, or as suddenly ceases, until the hearts of her poor votaries are seized with an exquisite pain—but those dear woes we may not voice.

## WILLIAM LEON DAWSON—A BIOGRAPHY

By HARRY S. SWARTH

WITH PORTRAIT AND TWO PHOTOS

IT IS always of interest to follow the growth of a large and important enterprise, to trace, step by step, the first early attempts by which momentous results are eventually reached, and to study the personality of the man or men behind the undertaking, the backbone of the adventure. The Cooper Ornithological Club has in recent years widened the scope of its activities to an extent probably undreamed of by its founders, being now committed to the active support of several undertakings of unusual interest and moment; and the individuals most directly concerned in each of these different enterprises have naturally become objects of particular interest to their fellow club members.

Among the projects which the Club has pledged itself to support there is probably none of greater general interest than the proposed publication, "The Birds of California," undertaken by William Leon Dawson, and now being so energetically pushed towards completion. Those of us most closely in touch with Mr. Dawson—who have had opportunities of observing the growth and development of the undertaking—have felt that others would be interested to know something of the circumstances leading up to so desirable a consummation as the production of the work as planned, as well as something of the ideas and ideals with which the author approaches his task. In this brief sketch the main incidents of his career are outlined, and an attempt is made to interpret some of his aspirations as to what the forthcoming book should be.

William Leon Dawson, an only child, was born at Leon, Decatur County, Iowa, February 20, 1873. The family soon after removed to western Kansas, where the father, William E. Dawson, a lawyer, helped to organize the county of Rush, becoming its first prosecuting attorney, and later its first superintendent of public instruction. A little later the father entered the ministry, and the family removed, first, in 1879, to Ottawa, Kansas, two years later to northern Illinois. When the son was twelve years of age they moved to Ahtanum, Yakima County, Washington; and when he was fourteen to Seattle, where he entered the State University, at that time little more than a high school.

The boy had already a fondness for natural history, an attribute not so uncommon in youth, but which too frequently dies out through lack of encourage-



Fig. 15. WILLIAM LEON DAWSON  
Photo by W. Edwin Gledhill

ment and guidance. In this instance the son received from his father, although himself not a naturalist, inspiration for a passionate and lasting love for the out-of-doors and for all that it includes. The religious influence of the mother developed in the child a hopeful courage and exuberant cheerfulness, conducive to ambitious effort, regardless of obstacles. The love for the open in general soon had a more definite objective in a collection of birds' eggs, started in emulation of a young friend. "It was in northern Illinois in 1883 that I flushed a Prairie Hen from a nest of fifteen eggs. 'Roy Sears collects birds' eggs; why not I? Just one'. (And the memory of those fourteen wasted eggs has haunted me ever since!)" Among still more youthful recollections he speaks of several incidents connected with bird life, which stand out in vivid remembrance—at four of being lifted up to see the eggs in a Brown Thrasher's nest; at five of being lowered over a sandbank on a rope, to investigate Bank Swallows' nests; and of his excitement the next fall at the sight of a migrating host of hawks, which filled the nearby trees at nightfall.

The accumulation of eggs soon led to a desire to learn more of the birds themselves. Wood's "Natural History" and a "Library of Universal Knowledge" did but poorly appease this hunger for knowledge, although the scanty information relating to American birds contained in these books was eagerly gleaned from the mass of other matter. Not until he was eighteen did the young student acquire a real bird book, Coues' "Key" (fourth edition), the possession of which marked the beginning of a new era in his development. At sixteen he had begun systematically to keep written record of his ornithological observations. This journal he has continued uninterruptedly ever since its inception, and this careful elaboration of observations has done much toward ensuring accuracy, as well as variety and exactness of expression; while perhaps the greatest value to the mature student is the record of the changing view points of the growing youth.

It was while a student at the University of Washington, working under Professor O. B. Johnson, himself somewhat interested in ornithology, that Dawson first conceived the hope of perhaps some day writing a work upon the birds of the state. A little later, as a freshman at Oberlin College, he came in contact with an older student, Lynds Jones, and it was to Jones that he owed, as he puts it, "the unstopping of the ears".

"It is marvellous in retrospect", he says, "to think how dependent I was upon a single faculty, that of vision, in endeavoring to learn the life of the birds. It was as though I had no ears until Jones pointed out the beauty and variety of bird music. Now I take as much pride in recognizing a bird by its faintest chirp or twitter as by its color-pattern or fashion of flight. Indeed, in the appreciation of birds I should sooner sacrifice eyesight than hearing."

The friendship between Dawson and Jones was lasting, and the two men did much work together. A paper entitled "A Summer Reconnaissance in the West" appeared in the *Wilson Bulletin* (no. 33, 1900) giving "horizons" of the birds seen on an extensive western trip undertaken by the two companions.

Although from his earliest years so deeply interested in birds, Dawson had only the ministry in mind as his life's work, and in pursuance of this career he entered the theological seminary at Oberlin in 1894, instead of completing his college course. On May 1, 1895, he was married to Miss Etta Ackerman, also a student at Oberlin, and the following year was spent as a home missionary and Sunday school worker in Okanogan County, Washington, a parish then larger than the state of New Jersey! In this exceedingly attractive ornithological field

the birds secured somewhat more than their due share of attention, and various short papers were published as some of the results of the year's observations. Probably the most important of these was "A Preliminary List of the Birds of Okanogan County, Washington", recording 145 species, which appeared in *The Auk* for April, 1897.

His constantly augmenting interest in ornithology bred a desire to abandon the ministry for science, and Dawson returned to Oberlin once more to take his senior year in college, securing a position in the college museum. The dissection of cats in a college laboratory, however, proved much less interesting than the study of birds in a virgin field such as he had just left, and the evangelical interest gained strength once more; so that the following year found him enrolled as middler in the theological seminary. He graduated from the institution with highest honors, gaining the greatest financial prize awarded for the year.



Fig. 16. THE STUDIO, LOS COLIBRIS

Following his graduation Dawson returned to Washington, but after a year in Yakima County, in charge of a moribund country church and an equally discouraging country academy, he accepted a call to a vigorous city church in Columbus, Ohio. Here the burden of clearing a big church debt developed an unsuspected talent for "raising money", a most useful faculty in the work to come in later years. The labor involved in this added obligation, however, together with the somewhat uncongenial exactions of a large city parish, caused a physical breakdown which finally decided Mr. Dawson to definitely abandon the ministry, and devote himself entirely to ornithology.

Prominent among his parishioners, and a close personal friend, was an experienced book-man, and the two together planned the publication of "The Birds of Ohio". This was published in the winter of 1903-04, and the work itself met with instant approval, an edition of 5,000 copies being quickly sold out. But the

affairs of the publishing company were mis-managed, and Mr. Dawson withdrew, determined to profit by the mistakes of this first venture, and to become himself responsible for the financial management as well as for the literary and scientific sides of any similar undertaking in the future.

He returned to the state of Washington, where, in the spring of 1905, he organized the Occidental Publishing Company, and began work on his "Birds of Washington". These were boom days in the northwest, and it speaks volumes for the character of the man that he should have persistently disregarded the financial allurements constantly offered in a community gone real-estate-mad, to continue steadfastly in the pursuit of his object. Four years of unremitting and arduous labor finally resulted in 1909 in the complete success of what at first had seemed but the dream of a visionary, the production of one of the most beautiful sets of books in modern ornithological literature.

The high appreciation of his efforts expressed by certain members of the Cooper Club contained perhaps the first suggestion of the desirability of attempting a similar work in California. This course of action was decided upon only after a year's deliberation, but the field afforded such unrivaled opportunities, and the encouragement and support proffered were so reassuring that there was no resisting the temptation.

In the selection of a dwelling place the charms of Santa Barbara prevailed over the rest of the state; and here, on the outskirts of the city, a comfortable home, "Los Colibris", was established, a place for rest in the brief intervals between campaigns of activity in the field, and for the planning of future work.

An immediate result of this choice of a home has been an exceedingly interesting series of studies of water birds, some of which are already familiar to CONDOR readers. With the summer months spent in the field, photographing, observing, and collecting, and with the winters devoted to the arduous labors involved in the financial end of such an undertaking, time passes swiftly, and three or four years seems all too short an interval in which to produce such a book as the one planned. The field work so far has included expeditions to the Farallon Islands, to the Warner Mountains in extreme northeastern California, and to the Mount Whitney region, as well as numerous shorter trips. During the coming spring the Colorado Desert birds will receive their deserved share of attention. The Farallon trip was unexpectedly productive, of two birds new to California, the Black-throated Green Warbler and Oven-bird: rather startling records from such a locality.

As to the desirability of the work which Mr. Dawson has begun, and as to his personal fitness for the undertaking, there can be no question. Its tendency to awaken interest in the subject treated on the part of many who would be otherwise utterly indifferent is alone a feature the importance of which can not be overestimated. In every aspect of work in which we are all engaged, whether in trying to arouse interest in a Museum project, or in attempting to guide the public toward the enactment of intelligent legislation as regards the animal life of a commonwealth, there is almost always a long and usually discouraging period which must be devoted to educational work. During this period every energy must be devoted toward awakening a proper public sentiment in the matter, frequently overcoming unreasonable or adverse prejudice. In its educational aspect alone such a work as Mr. Dawson's is invaluable.

A book of the nature of the projected work occupies a distinctive position of its own. It in no wise conflicts with the more technical papers which other students are producing, but appeals to a clientele which the latter never reach,

one to whom the rather dry and formal style of the usual "state list" would appear to be extremely dull and uninteresting. To produce an artistic and attractive set of books, filled with beautiful illustrations and containing text which presents the subject matter in pleasing and novel style, is to popularize the subject of ornithology in a way undreamed of and impossible of attainment to the self-centered specialist, intent on his own particular line of study.

Those who have followed Mr. Dawson's work cannot fail to have been impressed by the originality of his style, and by the pleasing manner of treatment. It is given to but few writers on this or kindred subjects to say their say in such a way as to hold the reader's attention regardless of the fact as to whether or not he is particularly interested in the branch of science treated. Among the older writers on birds Audubon and Wilson at once spring into the mind as having owed their fame to this peculiar gift more, perhaps, than to any other of their ac-



Fig. 17. THE GATEWAY, LOS COLIBRIS

complishments. Coues, also, wonderfully attractive writer that he was, had to perfection the faculty of drawing a pleasing and fanciful sketch of a bird, and by means of most imaginative similes and comparisons, presenting an absolutely lifelike and accurate picture.

It is no disparagement of the many able and conscientious bird students of today to say that, however thorough and accurate their published writings may be, there are but very few who have this gift of holding the interest of the general public. Where we *do* find this faculty it is the duty, and most decidedly to the interest, of all ornithologists to see that the fortunate writer is given the utmost opportunity to use his talent to the best advantage.

In all of Mr. Dawson's work the feeling borne by a true lover of books as such toward a beautiful edition is very apparent. A cheap book has nothing to recommend it in his eyes, an attitude which has resulted in "patrons' editions"

and "editions de luxe" rather overwhelming to the student who has been accustomed to regard an outlay of a few dollars for bird books as something of an extravagance. So much depends upon the point of view! The present writer implicitly believes that certain books should most undoubtedly be made to sell cheaply. A hand book designed to help the beginner should certainly be issued in such a way as to most surely reach the audience for which it is intended.

On the other hand, that which is too easily obtained is apt to be held in but slight esteem. "The Birds of California" is not issued as a hand book, nor should it be compared with a dry and technical check list. It is a magnificent and artistic handling of a beautiful subject. Whoever secures a copy will have made sufficient of a sacrifice to obtain it to cause him to place high value upon his possession, a value it will amply deserve.

The originality and charm of Dawson's style is all his own, but with all his variety of expression there can be no doubt of his constant and conscious striving for accuracy. Perfection, of course, is attainable to none, but there is vast differ-



Fig. 18. THE BAIRD SANDPIPER

From a photograph, copyright 1913, by W. L. Dawson

ence between error of judgment and that of intent. A mere fact is of itself of no value. Different statements of the same fact will differ in value precisely as the men who report them differ in imaginative power. The man we listen to is he who lets his imagination play about a fact, who is able to see its relationships, and hence invests it with real value and interest.

The application of this test to Mr. Dawson's work apparently gives the real clue to the philosophy of his writings. He does not feel called upon to serve some such abstraction as Truth or Science, so much as to proclaim *now*, be it more or less complete, what may later on, after further assimilation, be readjusted and receive a different value from that accorded it today. In comparison with this attitude we may consider the opposite type, also found among us, the man who sits back and gloats over the realization that he has in his possession a vast store of accurate knowledge of some particular subject, known to no one else

and which he has no intention of parting with; deriving his pleasure from the faulty attempts of others less fortunately situated, along the same line of study. The mistakes sometimes made from a too hasty acceptance of first impressions seem of small moment compared with what may be endured through the peculiar temperament of this type of student. "It is better to play ball, even if you make a wild throw once in awhile, than it is to sit on the bleachers and carp at the players".

### ALLAN BROOKS—AN APPRECIATION

By WILLIAM LEON DAWSON

WITH PORTRAIT

BROOKS is sitting right now at the great north window of our studio at "Los Colibris", whither we have succeeded in luring him for the winter. His high stool is drawn up to a large work table, where he is alternately poring over a handful of bird-skins and sketching with swift, deft fingers an imaginary spray full of very real Warblers. He doesn't in the least suspect what I am going to do to him, and I am feeling somewhat guilty as well as very solemn in this most traitorous act of friendship. It is perfectly certain though that I shall catch it when he does find out, for he is, above all things else, a modest man, and would shrink from even the mellow light of *THE CONDOR*'s pages.

Along the east wall of the studio stretches a length of burlap whereon are hung the latest products of the artist's skill, and I slip over once in a while to gloat over them all, or to make *moues* at the latest arrival, with all the easy assurance and something of the honest pride of the family doctor. Just now the Dwarf Hermit Thrush is paying court to a Flammulated Screech Owl, and the Elegant Tern is considering whether the Allen Hummer hard by would not make an elegant mouthful. In my opinion he would, for he is a quivery morsel of fire, alive in every iridescent vane. And it is first of all because these birds live, live and breathe and flaunt their feathers in our faces, that the life story of their re-creator is worth telling.

Allan Brooks was born of English parents on the 15th day of February, 1869, in Ettawah, India. His father, William Edwin Brooks, was a civil engineer in charge of construction on the East Indian Railway. Ornithology was the father's hobby, and young Allan took to it almost from infancy. Although he was removed at the age of five to the home land, as practically all European children must be to escape the unaccustomed diseases of a deadly climate, he remembers vividly many of the Indian birds, and articles in *Stray Feathers*, to which his father was a leading contributor.

Left to the various mercies of seven maiden aunts, the youthful Allan chewed and eschewed the catechism, attended school, robbed birds' nests, and early and irrevocably decided against matrimony. While other boys were playing cricket, he was roaming the hills, and by the time his fellows had mastered hazing he had learned the birds of England.

In 1881 the father returned to England after twenty-eight years' service in India, and almost immediately thereafter conducted his family of six members to Ontario, where Allan's mother died. The next six years were divided between farm-work, school, and the formation of an extensive collection of bird-skins. By rare good fortune there was at hand a full kit of brushes and water-colors, a heritage of the father's really creditable but self-depreciated years of effort. Young Allan

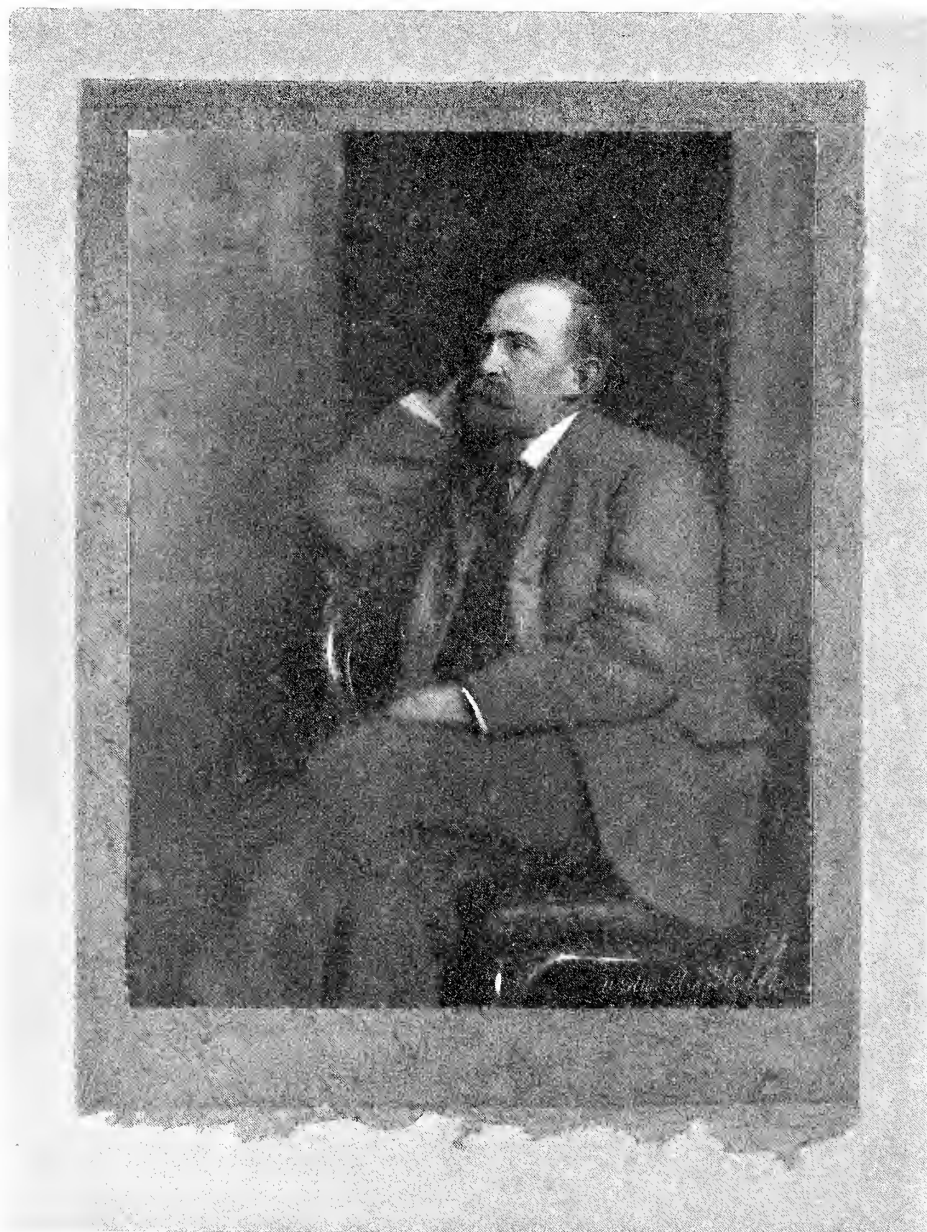


Fig. 19. ALLAN BROOKS  
Photo by W. Edwin Gledhill

was given *carte blanche* with these brushes, although his father would give him no advice, and he painted—nothing but birds—painted day and night, until every species represented in his collection was reproduced in color.

In 1887, namely when Allan was eighteen, the family, then consisting of the father, two older brothers, and a younger sister, and himself, removed to British Columbia and settled on a farm in Chilliwack Valley, on the lower Fraser River. This little-explored region was quite to our subject's liking, and while he hated farm work, he found in bird-study a constant relief which made farm-life endurable.

In 1890 the Brooks home with the outbuildings, including a rude museum, was destroyed by fire. The young man succeeded in saving most of his bird-skins—would have saved them all but for a murderous fusillade of exploding cartridges—but he lost ten years' notes and all his paintings.

Disheartened by this disaster and yet enthralled by the charm of the wilds, the ornithologist practically abandoned both his museum work and his painting, and gave himself over to hunting, trapping and exploring. For ten years he threshed out the mountainous section of southern British Columbia, until he knew it as a man knows his door-yard. As a result he recorded stuff from the general vicinity of Chilliwack which we didn't realize existed in the Northwest—had the skins to back it too—Bobolink, McCown Longspur, Harris Sparrow, Black-headed Jay, Stilt Sandpiper, Gray Gyrfalcon, and a score of others the mere mention of which thrills the nerves of a working ornithologist. To prosecute his studies and to carry on his field work after the family had again abandoned the farm and gone East, Mr. Brooks began to sacrifice his accumulated collections and the cream of his annual take as well.

The career of a collecting naturalist is seldom a prosperous one, and Brooks's was no exception. It is difficult for a distant patron to understand the hardships of the man in the field or to realize the acuteness of his necessities. Collecting for pay, indeed, is endurable only in the case of one who has a consuming passion for the wilds, and who is able to turn to final account the intimate knowledge of nature afforded by those hard-earned opportunities. Brooks had at least this to show for the ten years spent in enriching others, even though he himself would have prized more than most the choice things he had to pass on. He had, of course, himself to thank for habitual under-estimation of his own worth and opportunities. But it was hardly his fault when a wealthy English collector of international reputation offered him a bonus of *sixpence* for every new species of flea he should discover, and surrender. The savant made good too, and sent our supposed humble provincial a cheque for a shilling for *two* such new species. Brooks has it framed as "Exhibit A" of plutocratic munificence.

Toward the close of this decade Brooks resumed the brush in answer to repeated demands for detailed studies of "soft parts" of birds and big game. This led to more pretentious efforts, and sketches from life were submitted to one and another of those eastern customers who had bought skins or eggs of him. His black-and-white work began to appear in *Recreation, Forest and Stream, St. Nicholas* and other magazines, and he came to look upon sketching as a subsidiary means to a livelihood.

When "The Birds of Washington" was proposed in the fall of 1904, I wrote up to neighbor Brooks, whom I had never met, thinking to get a contribution of notes. In replying he enclosed a black-and-white, a sketch of a Black-throated Gray Warbler, asking me if I could use anything like that. My blood leaped at sight of it, for I had not known that anything of that quality was being produced

in the West. We arranged at once for forty black-and-whites, and later were able to stage the color-plates, which have given Brooks a favorable introduction to the world of bird-lovers. From 1906 on, Mr. Brooks has been kept as busy as the irreducible claims of field work would allow. He has thus taken his art seriously for seven years past, and has long since found himself, in confidence as well as in style and finish of workmanship.

Before we pass to an analysis of Brooks' art or to a consideration of the man himself, it may be as well to note his recent activities. Besides fugitive pieces owned by sportsman friends and admirers in British Columbia, Washington, and England, there are to date six principal collections of Brooks' work: Dr. William Brewster, of Cambridge, always a consistent friend of the young artist, has a small collection of his very early work, perhaps a dozen pieces of varying merit; Francis Paget, Esq., of London, has by far the largest and best general collection, comprising a series of ambitious paintings of big game and some of the larger birds, some twenty pieces in all; Colonel John E. Thayer, of Lancaster, Massachusetts, has a representative collection of earlier and smaller pieces, besides a series of sixteen bird-plates contained in his extra-illustrated copy of "The Birds of Washington"; Hon. John Lewis Childs has the finest individual collection of bird-plates extant, some forty pieces, illustrating the summer resident birds of his spacious grounds at Floral Park, New York; Miss Ellen B. Scripps, of La Jolla, has sixteen pieces of more recent work, most of them intended for future publication in "The Birds of California"; then, besides the accumulating store (something over one hundred) prepared for that work and now in the writer's custody, there are here at Los Colibris many originals of "The Birds of Washington" and a small collection of game pieces. Two other collections, since scattered, deserve passing mention—the Inghram Hughes Collection, of about forty earlier pieces, some of them of matchless technique and inspiration, which were scattered when that unfortunate plunger went to pieces in New York City some three years ago; and the Vienna exhibit. By request of the Provincial Government of British Columbia Mr. Brooks contributed nine pieces to the International Sportsman's Exposition at Vienna in 1911. By the conditions of the loan the sale of these paintings was not permitted; but one of the best of them, a magnificent Golden Eagle, was stolen—stolen, too, gossip has it, by one high in official position. (Poor fellow! One scarcely blames him. What else could he do if they wouldn't let him buy it?)

Of the critical judgment of Brooks' bird painting the writer is perhaps least capable, for he loves every line and shade as it falls away from the facile brush. But these characteristics at least are distinctive in Brooks' work:

The authority of intimate knowledge. The artist is first and always the scientist. He is by far the keenest observer of nature I have met. He is not only quick at field recognition, but he has an apparently inexhaustible store of exact information as to plumage changes, evanescent colors, scutellation of tarsi, and all else that pertains to the external appearance of birds. Add to this a memory photographic in its accuracy, and you have a sure foundation for authoritative painting.

This accuracy of knowledge is sustained by accuracy of method. Bills and feet (where human judgment is most fallible) are drawn to scale, and all the problems of light and shade, balance, texture, contour, and perspective, are thought through to a finish. When to this is added the artist's sympathetic imaginativeness, it is little wonder that we have living images instead of pale copies of birds.

It is always to laugh how promptly the casual bird-student criticises a bird-painting, especially if it is a bit unusual. It is trebly amusing if the artist is by, for he is able to sustain his position by exact citations and conclusive examples. The average bird-student finds that he is psychologically inaccurate in his observations, and his flimsy defenses go down under the merciless fire of question to which Brooks subjects his pretensions—not, indeed, to confuse the student, nor to justify Brooks, but to develop the truth. Fidelity to nature is instinctive with Brooks, but accuracy of drawing is as sedulously cultivated as are scales and appoggiatura by a prima donna. It is basal. Much of his work will bear the microscope and all of it the telescope. Work which will bear both is rare, indeed, but painstaking accuracy of detail is united with depth, roundness, and life-like appearance, to a unique degree in the work of this artist.

Perhaps his chief distinction is a feeling for plumage. Brooks's birds are clad in *feathers*, fluffy, dainty, fimbriated feathers, which you would like to trowse in your fingers for the sake of seeing them fall back into place with almost sentient precision. We have all of us seen the other sort—coats of mail, or scales, and we hail with delight a man who *feels* a bird's definitive mark, feathers.

Naturalness and repose also characterize all of this self-taught artist's work. His birds are not doing stunts after the discarded fashion of Audubon, but they have the imperishable quality of repose, and this whether at rest or in action. There are bird portraits in the older style which fill you with a sense of disquiet. You want to quit their presence after a momentary glimpse, but you cannot so easily be rid of them. Their manifest discomfort haunts you forever after, and as often as you recall their strained attitudes, you are distressed. Not so with a Brooks. Be the bird flying, climbing, or standing, he is balanced. He can abide your absence, and you will return for another view as to the sight of a beloved pool.

Softness is another characteristic of Brooks's work, and it shows not only in his matchless feathers, but in his charming backgrounds. Brooks hates to do backgrounds with his birds, because he contends that we cannot see birds *and* scenery at the same time. And of course he is right. If the eye focuses on a bird, the scene goes out. But we have to compromise here. We can get enough fuzzy backgrounds with the camera. What we want to see, often enough at least, is the bird in his setting, even if we do violence to nature. What we get is really symbolism; and Brooks handles his backgrounds with so delicate a touch that we get the *sense* of the bird in his surroundings even if we have to admit, upon analysis, that the bird itself is too large or too well defined to pass for a photograph.

Bird paintings are for the most part necessarily illustrations, and as such they have abiding values. We want to get our friends at close range, arrayed in their best, and we want to see them with definitive distinctness in a clear light, together with such an investiture of appropriate surroundings as may be thrown about them. Bird "pictures" in the strict sense are possible only in the case of the larger species, where the subjects may be placed at a sufficient distance to be brought into focus along with trees and fields and mountains. They must appear, namely, beyond the hundred-foot, or universal focus, distance. The only exception possible to this rule is in the selection of appropriate floral or local setting, pitched to the same scale of magnitude as the subject. But this is not a critique on art, only a plea for honest judgment and discrimination in a field which has its confessed limitations, its impassable boundaries.

Beyond this realm Brooks can pass, and does pass in his delineation of big game; but he carries with him still, truth to tell, something of the spirit of his

other field. His interest centers first in the animal. He cannot avoid painting a portrait, whether of Caribou, Antelope, or Cougar, and his subject dominates or overrides a scene of immortal beauty. If we could spare him from the field of illustration, he could speedily escape from this mannerism. But can we so spare him? Speaking selfishly, we certainly cannot until "The Birds of California" is completed, for the task has become a sacred responsibility which no one else can so well meet as he.

In making strong claims for our western champion, I do not mean to overlook or disparage the work of that veteran bird-artist, Louis Agassiz Fuertes, of whom Brooks himself has the very highest opinion. These men are of the same "order of magnitude." Fuertes' work is bolder and more masterful, as he is undoubtedly the better draughtsman. Brooks's work is, perhaps, more subtle, restrained and finished. The former inclines to hardness of treatment, especially in his backgrounds, while the latter errs, if at all, in vanishing delicacies. Both of them so habitually amaze and delight us that we exclaim ten times to once we criticise.

Of Brooks the man I shall find it difficult to speak with a restrained enthusiasm. In the first place, our artist is thoroughly English, not atrociously, but naturally and delightfully so. In physical appearance he is a trifle under the average stature, but well-set-up and elastic withal. His hair is light and tends to baldness, while his countenance, which rather inclines to the florid, expresses at once modesty, geniality, and an innocence which is absence of guile rather than lack of *savoir faire*. A few wrinkles about the eyes show that the man has been much out of doors as well as that he is past forty.

Truth to tell, I had pictured my lion with a little more of the stamp of the woods upon him (we met him for the first time in Seattle in December, 1909), and was quite prepared to pardon a little ignorance of the conveniences, some degree of uncouthness even, but it required but a moment to perceive that Brooks was a perfect gentleman. His courtesy is no studied attainment, but is based alike on native generosity and the careful breeding of many generations. The soul of courtesy is unselfishness. The self-forgetful man is better equipped to appear in society than the carefully drilled person whose mask-strings are likely to break under unexpected strain. Brooks was born to the purple, and thirty years of woodcraft have not unsettled his claim.

As I have known by long correspondence, modesty is Brooks's most conspicuous trait. Modesty such as his may be a handicap, undoubtedly has been in the way of business success, but it is a grace of character of the rarest sort. There is no affectation about Brooks's. It reacts spontaneously, gushingly, whenever self is touched. Such a mental state is fortunately unconquerable. It simply refuses to believe half the good words said of it, and humbly tries to be worthy of the other half.

Brooks's modesty, however, will bear analysis. It is no mere fear of men on the one hand, nor unreasoning self-distrustfulness on the other. It comes rather from a clear vision of high ideals, high ideals of art, of conduct, and of scientific attainment, before which those who are wise are always humble. Brooks knows what he can do, and he does it rapidly, unassumingly, and unerringly. Or if he makes mistakes, he is the very first to acknowledge them.

All the more surprising is the man's unfailing modesty, in view of his breadth and versatility of interest and accomplishment. I knew Brooks was up on birds, and I presumed that he was somewhat versed in mammalogy, but when some one asked him how many mice there were in Chilliwack, and he rattled off

a dozen scientific names glibly, we were more than pleased. In like manner, a crab dissected at luncheon (with mayonnaise) was noted as so and so *major* or *principalis*, as the case might be. Casual mention of a butterfly led to quick inquiry as to species, a question I was helpless to answer.

A local bird-man, Rathbun, having been called in by the customs authorities for consultation in reference to a seizure of Japanese birds, mentioned the matter afterward in Brooks's presence. He pricked up his ears at once and there was soon an animated discussion on as to whether so and so of these absent exotics might have been *gordoni* or *japponicus*.

Nor is it in the realm of nature alone that our artist shows a keen interest and a retentive memory. Art, music, literature, are alike familiar grounds, and one wonders where a single gentleman very much devoted to sport out of doors, ever found time for all these things.



Fig. 20. HIGH TIDE: LONG-BILLED DOWITCHERS AT REST

From a photograph, copyright, 1913, by W. L. Dawson

The only accomplishment in which Brooks will frankly admit a proficiency is in cooking. This is evidently a legitimate subject for bachelor pride, in view of the inevitable thrusts aimed by us over-confident family men. But Brooks is humorously boastful of his triumphs in the culinary art, and to judge from his account of the swarms of visitors, prospectors, amateur sportsmen, and the like, who share his bachelor hospitality at Okanagan Landing, there must be a good deal in it. In fact I gathered that one reason for his willingness to quit the Okanagan country for the winter was a desire to shake some of these fair fodder friends and devote himself more assiduously to his art. And really, the amenities of human intercourse, however sweet, must give place at times to family cares, with the man who is wedded both to art and nature. When the claims of friendship become too exacting, there is nothing for it but to take to the woods, and this Brooks does for at least two months in every year. Of course he takes a friend with him, if one can be found who will hold up to his

pace. While excessively fond of the wilds, he enjoys a boon companion and dislikes absolute solitude, especially that of the lonely bivouac.

A keen sportsman and a crack shot, Brooks knows guns as a pianist knows his keyboard. He has killed every kind of big game in British Columbia save Cougars, which have curiously enough eluded him, and the walls of his lodge on the shores of Okanagan Lake are covered with trophies. He is also "leftenant" in the Canadian Militia and instructor in rifle shooting. One shudders to think how our artist might have been a mere globe-trotting game-killer, or even a dapper officer in the English army, a cock among guinea-fowls, if the scientific instincts had been less carefully schooled, or if the seeds of the ornithophilic passion had not found early lodgment in prepared soil. Artist, bird-lover, scientist, sportsman, explorer, genial host, and loyal friend—this is a very pleasant combination; and that it is embodied in a single unassuming personality, and a highly efficient one, is a matter of sincerest congratulation to those who know Allan Brooks. It is to him we look with confidence for a series of bird paintings, the most elaborate and beautiful which have ever been produced in America.

*LEUCOSTICTE TEPHROCOTIS DAWSONI*—A NEW RACE  
OF ROSY FINCH FROM THE SIERRA NEVADA

By JOSEPH GRINNELL

(Contribution from the Museum of Vertebrate Zoology of the University of California)

WHEN judiciously employed, "geographical reasoning" proves of positive help in guiding the student towards the ascertainment of the results of speciation. Experience has taught us to expect that geographic differences of great or less degree are to be found in any animal of wide range, particularly if this range includes two or more areas each of which has marked faunal peculiarities. In other words, we are often able to anticipate the existence of a distinct new race of animal in a given region, on the basis of our knowledge of other animals in the same region, without ever having seen a specimen.

In spite of frequent aspersive comment directed towards those who have employed it, this is a perfectly good application of inferential reasoning. Needless to say, however, only the establishment of the concrete facts in the case, based upon conscientious study of actual specimens, can be regarded as adequate grounds for publishing a new name.

For many years students of North American birds have known that a certain species of Rosy Finch (*Leucosticte tephrocotis*) existed both on the high mountains of east-central California and on the northern Rocky Mountains of British America, even to eastern Alaska. But, notwithstanding critical attention from several keen systematists, no differences deemed worthy of separate naming have been published. In fact, this species of *Leucosticte* has been remarked upon as a Fringillid of relatively great range, and yet one in which geographic variation is notably lacking.

The present writer believes these conclusions to have been faulty, due in major part to lack of sufficient series of specimens in the various seasonal and age plumages. For he is now so fortunate as to have at his disposal for study the practically ideal material indicated beyond, and this study leads to an opposite view.

As giving foundation for suspecting the true state of affairs, even before this material was available for examination, the writer had assured himself that, as far as known, in not one single Boreal mammal or resident bird (other than the Rosy Finch) was the subspecies (or species) identical on the Sierra Nevada and on the northern Rocky Mountains. If the Rosy Finch should prove absolutely the same in the two areas, it would constitute the only known exception, and would for this very reason merit particular comment. The writer was prompted to see if the Rosy Finch had really defied the forces causing geographic variation in the other animals. Frankly, he would have been astonished to find the behavior of the Rosy Finch out of harmony with that of mammals and other birds of similar ecologic relationships.

But—critical study leads straight to the thesis that as with the other animals isolation of habitat by long distance (and under differing conditions) has resulted in subspecific divergence.

***Leucosticte tephrocotis dawsoni*, new subspecies**

Sierra Nevada Rosy Finch

TYPE.—Male juvenal; no. 20217, Univ. Calif. Mus. Vert. Zool.; Whitney Meadows, 9800 feet altitude, Sierra Nevada, Tulare County, California; August 7, 1911; collected by J. Grinnell.

DIAGNOSTIC CHARACTERS.—As compared with its nearest relative, *Leucosticte tephrocotis tephrocotis* Swainson, of the northern Rocky Mountain region, in British America and western Alaska: general coloration in all plumages grayer toned, less intensely brown, size slightly less, the bill being distinctly less in bulk, and wing averaging more rounded; juvenal plumage much grayer especially anteriorly both above and below; breeding females less different; breeding males least different, but still perceptibly less vivid in the chestnut about the head.

MATERIAL.—Of true *tephrocotis* there is available a series of twenty-three fresh skins loaned for the use of the writer by the authorities of the United States National Museum. These are beautifully-prepared specimens collected in the summer of 1911 by Messrs. Joseph H. Riley and Ned Hollister. The localities of capture are Moose Pass, and Moose Branch of the Smoky River, both in the Canadian Rockies and near to one another, the former in British Columbia the latter in Alberta. Since these localities are not on any map at hand, the writer was furnished information as to their whereabouts from Mr. Riley, to whom he is also indebted for the courtesy of offering him the material for systematic use.

Of *dawsoni* the material at hand consists of fifty-six specimens contained in the Museum of Vertebrate Zoology, chiefly of 1911 and 1912 collecting, in the Sierra Nevada of Tulare, Inyo and Eldorado counties, California. In detail the material at hand is made up of plumage-stages as follows:

*Leucosticte t. tephrocotis*

- 7 adult males (July, August), in more or less worn breeding and post-breeding plumage.
- 8 adult females (July, August), same condition.
- 8 juvenals (July, August), wing and tail feathers not fully unsheathed.

*Leucosticte t. dawsoni*

- 18 adult males (May to August), in more or less worn breeding and post-breeding plumage.
- 12 adult females (May to August), same condition.
- 11 adult males (September), molting to full winter plumage.
- 4 adult females (September), molting to full winter plumage.

11 juvenals (August), full-grown; new feathers, of first winter plumage, showing in some.

MEASUREMENTS—The accompanying table of measurements is self-explanatory. It takes account of adults only, and in these care was taken to exclude examples obviously mutilated in respect to wing or tail feathers, or bill. A skin might have a perfect bill but quills too badly worn to warrant even an approximate dimension, and vice versa. Such a specimen is of course taken account of in the respect in which it does afford fairly reliable data. A percentage of error must occur, but it is the writer's belief that in taking the measurements he has erred as much on one side of the mean as on the other so that the relative size of the two subspecies in each respect, as far as shown by the material in hand, is approximately correct.

TABLE OF MEASUREMENTS (IN MILLIMETERS)

Figure in parenthesis in each column opposite "average", is the number of individuals measured in each case.

			Wing	Tail	Culmen	Bill from Nostril	Depth of Bill
<i>L. t. tephrocotis</i>	Males	Average	106.0 (7)	69.9 (7)	11.5 (7)	9.0 (7)	7.8 (7)
		Maximum	107.3	72.0	12.3	9.5	8.4
		Minimum	104.8	67.9	11.1	8.6	7.5
	Females	Average	100.9 (7)	66.2 (8)	11.4 (8)	8.8 (8)	7.8 (8)
		Maximum	104.2	69.8	12.0	9.4	8.4
		Minimum	97.6	64.4	10.8	8.3	7.4
<i>L. t. dawsoni</i>	Males	Average	104.6 (17)	70.4 (16)	11.1 (18)	8.6 (18)	7.0 (18)
		Maximum	107.6	74.1	11.7	9.3	7.2
		Minimum	101.3	67.7	10.6	8.3	6.7
	Females	Average	99.8 (8)	65.8 (10)	11.0 (11)	8.6 (11)	7.1 (10)
		Maximum	101.7	68.1	11.6	9.1	7.3
		Minimum	98.1	62.1	10.6	8.3	6.9

It is to be observed that in wing and tail length whatever difference exists is very slight, while in size of bill there is a notable difference amounting to from four to nine percent in favor of the northern race. Similar differences are shown in Ridgway's table of measurements of *Leucosticte tephrocotis* (*Birds N. and Mid. Amer.*, part I, 1901, p. 69). It would appear that as in many other birds of like distribution there is a tendency towards large size in the north.

The interesting fact is here brought out that there is a pronounced greater frequency of a rounded type of wing in the Sierra Nevadan bird than with the northern bird (see accompanying table). True, the actual differences involved are slight, but they are, never-the-less, significant, the correlation being with the different amounts of migration undertaken in the two races annually.

The outermost or ninth primary is longest in the majority of specimens of *L. t. tephrocotis*, the penult or eighth is next in length, the anti-penult or seventh is next in order; there being no variation in the succession of lengths of the rest of the primaries. In a plurality of specimens of *L. t. dawsoni*, the penult is longest, the anti-penult second in length, the outermost third in length. The formula "9-8-7" indicates the sharpest wing, "7-8-9" the most rounded; "8-9-7" and "8-7-9" are intermediate conditions, the former nearest the sharp extreme, the latter nearest the rounded extreme.

TABLE SHOWING FREQUENCY OF WING FORMULA

T—*L. t. tephrocotis*, 14 specimens.  
D—*L. t. dawsoni*, 23 specimens

		D	
		D	
T		D	
T	D	D	
T	D	D	
T	D	D	
T	TD	D	
TD	TD	D	D
TD	TD	TD	D
TD	TD	TD	D
9-8-7	8-9-7	8-7-9	7-8-9
Sharp-pointed	Wing		Rounded

As far as known, the Sierra Nevada Rosy Finch does not leave its breeding grounds during winter farther than the near-lying mountain ranges immediately to the eastward. The British American race, however, is believed to furnish the individuals which occur in winter in the northwestern United States south to eastern Oregon, Utah and Colorado. At least a winter specimen at hand from Camp Harney, Harney County, Oregon, is distinctly *L. t. tephrocotis* as here restricted.

REMARKS—There is no spring molt in the rosy finches, but marked color changes are brought about through wear. By this process, the extensively pink superficial portions of much of the plumage in its fresh fall condition is lost by the time the breeding season is at hand, the underlying brown coloration being thereby rendered much more conspicuous. It is thus necessary in diagnosing specimens on the basis of color characters, as well as of wing formula, to take into account the stage of wear reached. The tone of coloration in fresh juvenal plumage would appear to be more determinant than that in worn breeding adults. And lacking perfectly comparable specimens, in fresh fall plumage, of the two races here distinguished, a juvenal is selected as the type of the newly named form.

The subspecific name given to the Sierra Nevada Rosy Finch is selected in recognition of the services to ornithology of William Leon Dawson. It has been the custom of systematists to signalize in like manner the work of fellow-systematists, of collectors, of benefactors to scientific institutions. In the present instance it seems to the writer quite in accord with this happy custom to recognize an eminent service to the literary and artistic sides of bird study. Mr. Dawson has contributed in this wise with marked success.



Fig. 21. BONAPARTE GULL IN THE ISTERO, SANTA BARBARA  
From a photograph, copyright, 1913, by W. L. Dawson

## GREAT DESTRUCTION OF BIRDS' EGGS AND NESTLINGS IN THE SIERRA NEVADA

By A. M. INGERSOLL

WITH TWO PHOTOS BY MRS. W. W. COOLEY

AS WE approached Cisco, Placer County, California, toward evening of June 7, 1912, the air seemed filled with the songs and call-notes of mountain birds. Observing that we had reached a section where birds were more numerous than is usual at so high an altitude as 5000 feet, I stopped my automobile at the only hotel in that charming resort and engaged accommodation for Mrs. Ingersoll and self. Knowing of no locality in the Sierras where small birds nested more plentifully than in that particular place, I anticipated the pleasure of adding much choice material to my collection of eggs. A few days' search, however, convinced me that I was not the only nest hunter, and that the Blue-fronted Jays had a great advantage over one who collects full sets only. Jays were no more abundant than in similar places elsewhere, but these particular birds doubtless had an extra strong desire for eggs and naked birds. No jays were detected in the act of eating well-feathered young. Other natural enemies were doubtless the cause of some of the nests being tenantless. But as the jays were the only robbers caught in the act of taking eggs and young, the principal havoc is attributed to them and to an unseasonable snow fall. It is to be hoped that birds in the surrounding localities were more fortunate in raising their young. For a wide spread destruction like that at Cisco would tend to wipe some species out of existence.

Following a week of delightful weather, a cold rain began falling on the morning of June 22, by night turning to sleet. At six o'clock on the morning of June 23 there was a depth of three and one-half inches of snow on the level. This snow was of a wet, clinging nature, weighing down every leaf and twig, and causing large branches and limbs of some deciduous trees to break. Clumps of bushes were generally weighted down to about half their height on the previous day.

Many nests that were on flexible branches had their contents spilled out, while those built against trunks of small trees or between the main stems of bushes were later in the day bombarded with huge chunks of snow dislodged by the wind. This permitted branches to spring violently up to their accustomed position, a further cause of destruction. Horizontal branches of large fir trees drooped and crushed nests that chanced to be located between them. It is easy to imagine that many sleeping birds were crushed to death as the snow-laden branches quietly settled on them. Personally I know of two instances. A brooding Audubon Warbler was killed, and two of her three eggs broken, in the nest situated thirty feet above the ground on the branch of a fir. The other instance was that of a Western Wood Pewee picked up from the ground with nest on dead aspen limb that had broken off and fallen from a height of some twenty feet. Another Wood Pewee's nest destroyed in the same manner, was found later in the day. While searching a large pine stub for the nest of a Sierra Creeper, I discovered a female Calaveras Warbler under a partially detached piece of bark. Her feathers were quite wet, and as the crevice was rather dry, I presume this ground-nesting bird was flooded out of her home and sought shelter as death approached.

While roaming over the mountain side at various times previous to the snow fall, no less than ten Calaveras Warblers expressed anxiety and disapproval of my presence when trespassing near their chosen nesting sites. Careful watching revealed two nests under process of construction. After the snow fall, I searched over the same ground on many occasions, and, as no warblers were heard or seen that could be identified as this species, I am of the opinion that all, or nearly all, perished in the catastrophe of June 23.

An apparent loss was only noticeable in three other varieties of birds. The fairly common Western Tanager was probably reduced in numbers one-third. Three pairs of Olive-sided Flycatchers had selected home sites at a distance of one half mile of each other. One had a nest more than eighty feet up on a horizontal branch of an immense fir; the others undoubtedly had nests concealed in dense foliage of lofty cedars. As but one bird was observed between June 22 and July 9, I surmise that the snow proved fatal to the others, for birds having such distinctive notes could hardly be overlooked by a person searching for them.



Fig. 22. CISCO, CALIFORNIA, FROM THE HOTEL GROUNDS; PHOTO TAKEN ABOUT 8 A. M., JUNE 30, 1912; TWO HOURS LATER THE TREES WERE NEARLY

FREE OF SNOW

Photo by Mrs. W. W. Cooley

For a week previous to June 22, I daily noticed a flock of six to seven Pine Siskins around the hotel barn. One fell a victim to the house cat; and the others vanished a day later. I might attribute their total disappearance to the cat and the snow, but I am inclined to believe that they moved on to a better feeding ground to establish a summer home; for a favorite food of the Siskin is the unripe seed of the dandelion.

The above mentioned cat was very destructive to bird life. He was seen to jump and catch a male Northern Violet-green Swallow as it flew over the croquet ground. He was also seen to stealthily approach and make an unsuccessful spring at a Pacific Nighthawk resting on the bare earth at the side of a mountain trail; and he was often found prowling beneath brushy thickets in search of prey.

As one cannot accurately estimate the mortality among adult birds, I merely state facts actually observed. This census of nests, found by the writer between

June 7 and July 9, 1912, within a radius of two miles of Cisco Postoffice, will enable the reader to form a fair idea of the tremendous loss in young birds and eggs in nests exposed to the elements and to the jays.

One nest of Plumed Quail (*Oreortyx p. plumifera*). The nest was evidently destroyed by an animal having sharp claws and long black hair—presumably a skunk. Sticky pieces of egg-shell were scattered around the nesting hollow.

One nest of Red-breasted Sapsucker (*Sphyrapicus v. daggetti*). Nest about ready for eggs, when birds were shot by a man camping under a nearby tree.

One nest of Olive-sided Flycatcher (*Nuttallornis borealis*). Nest was examined by means of a glass from a distance of 80 or 90 feet below. Previous to June 22 the birds were often seen, but not after that date.

Three nests of Traill Flycatcher (*Empidonax trailli*). A jay was seen at nest that had contained two eggs a few hours before. The other nests were wrecked, before completion, by snow bending apart the willow stems between which the nests were placed.



Fig. 23. CISCO, FROM ABOVE RAILROAD SNOW-SHED; PHOTO TAKEN ON JUNE 23, 1912, AFTER MUCH OF THE SNOW HAD MELTED

Photo by Mrs. W. W. Cooley

Nine nests of Western Wood Pewee (*Myiochanes r. richardsoni*). One nest and three eggs were taken by myself. One was partially dislodged by a squirrel running over same, when frightened by me while climbing an adjoining tree to examine a Kinglet's nest. Two nests were wrecked by snow. Two were emptied by jays (?). A bird was flushed from a single egg in a nest that contained two eggs when examined a few days previously. Two nests containing two and three eggs, respectively, were later observed to have brooding birds on each.

Four nests of White-crowned Sparrow (*Zonotrichia l. leucophrys*). One incomplete nest abandoned; also a nest with a fresh egg was abandoned for reason unknown to me. A nest with four eggs was later found to contain but a single sucked egg. One nest and four eggs were taken by a guest at the hotel.

Seven nests of Western Chipping Sparrow (*Spizella p. arizonae*). One nest and four eggs taken by a guest at the hotel. Two nests were emptied by

jays. Two with sets of eggs were destroyed by snow. One new nest was not later examined. One nest having eggs in it was inspected at various times until the young were about six days old, when some tragedy then occurred that left but a ruined home among the drooping branches of a tamarack tree.

Seven nests of Sierra Junco (*Junco o. thurberi*). Two nests with sets of eggs were taken by myself. One of these was peculiarly located, being back ten inches from opening of an old gopher's burrow, and six inches below the earth's surface. The eggs were out of sight and would have escaped my notice had the bird not flushed at close range. The situation of the burrow was a slight ridge or mound surrounded at a distance of 25 to 100 feet by huge drifts of snow remaining from winter storms. All new snow that fell on June 23 melted away within forty-eight hours. Two nests that held eggs when discovered were later found to contain dead nestlings. Two nests held dented and cracked eggs after the snow. One nest and five young were destroyed by some mammal, probably the same that dug the nearby nest of Plumed Quail out of the ground.

Sixteen nests of Thick-billed Fox Sparrow (*Passercella i. mcgarhyncha*). Two nests and sets of eggs were taken by myself. Two nests were emptied of eggs by children. One with two eggs was abandoned before incubation commenced. One with four eggs was destroyed by sheep feeding on foliage of bush. Five nests with dead nestlings were examined after the snow. Four nests were emptied by jays. One nest containing two pipped eggs was discovered through the actions of a jay that had its feast interrupted.

Two nests of Blue-fronted Jay (*Cyanocitta s. frontalis*). Only examined from beneath. Both nests placed on the inside framework of a snow-shed.

Two nests of Western Evening Grosbeak (*Coccothraustes v. montanus*). One contained but a single nestling a few hours old, when found July 3. On previous day a jay, chased by anxious grosbeaks and vociferous smaller birds, was seen to leave the clump of fir trees in which the grosbeaks' home was located, at a height of forty feet. I have no doubt but what the jay had feasted on the contents of this nest, and later came back and ate the remaining tidbit, for the nest was found to be empty on July 6. The other nest contained two dried-up nestlings when found by me.

Two nests of Cassin Purple Finch (*Carpodacus cassinii*). The jays took eggs from both nests.

Four nests of Green-tailed Towhee (*Oreospiza chlorura*). Nest and four eggs taken by myself. The jays (?) emptied the other nests.

Five nests of Western Tanager (*Piranga ludoviciana*). Two nests and sets of eggs collected by myself. One nest examined from a distance of fifty feet only. The birds were not seen around this nest after the snowfall. Two nests were probably emptied by the jays.

Two nests of Tree Swallows (*Iridoprocne bicolor*). Young in both of them.

Six nests of Western Warbling Vireo (*Vireosylva g. swainsoni*). All six were destroyed, presumably by the jays.

Two nests of Calaveras Warbler (*Erminivora r. gutturalis*). Both abandoned before completion.

Three nests of California Yellow Warbler (*Dendroica a. brewsteri*). One nest and set of four eggs collected by myself. One destroyed by snow. One emptied by jays (?). This last nest held about two table-spoons full of snow water on June 25. I placed a corner of a pocket handkerchief in the nest and siphoned all the water away, then reinforced the weak willow branch on which the nest was attached. My assistance was evidently appreciated by the birds, for

within fifty-one hours two handsome eggs were deposited in the still moist nest. They were gone and nest badly mussed when next examined by me, July 1.

Seven nests of Audubon Warbler (*Dendroica auduboni*). One nest and set of eggs collected by myself. Two nests were destroyed by snow. The other four were probably emptied by the jays. A jay was seen to carry a nestling from one of them.

Three nests of Macgillivray Warbler (*Oporornis tolmiei*). I collected one nest and set of eggs. The others were visited by the jays. They left two sucked eggs in one nest and numerous fragments of sticky shell on the foliage of the bush in which nest was hidden from view.

Six nests of Golden Pileolated Warbler (*Wilsonia p. chryscola*). I collected two sets of eggs. The eggs in four nests hatched but seemed to have met the usual fate within one to three days.

One nest of Rock Wren (*Salpinctes o. obsolctus*). It was placed out of sight and reach, in crevice in face of a small cliff. Entrance to the nest was paved with pebbles and pieces of coal.

Two nests of Sierra Creeper (*Certhia f. zelotes*). Young in both of them.

One nest of Slender-billed Nuthatch (*Sitta c. aculeata*). Not closely examined. A bird was seen to chase a chipmunk away from a tottering pine stub and then enter a crack at an estimated height of thirty feet.

Eight nests of Mountain Chickadee (*Parus g. gambeli*). Eggs were taken from one nest by a guest at hotel. Two nests held well-incubated eggs; and five held big families of young birds.

Three nests of Western Golden-crowned Kinglet (*Regulus s. olivaceus*). One contained a set of ten eggs on point of hatching. Two nests were torn out by the jays (?).

Two nests of Ruby-crowned Kinglet (*Regulus calendula*). One contained a set of eight highly incubated eggs on June 20. The other held a single fresh egg on July 6, and was empty the next day.

Three nests of Russet-backed Thrush (*Hylocichla u. ustulata*). One nest and five eggs, an unusual number for set of this species, was collected by myself. One new nest was tilted over by snow. One nest was partially emptied of fresh eggs by jays.

Twenty-four nests of Western Robin (*Planesticus m. propinquus*). One nest placed but four feet from the ground on small branches of a young fir, was tilted over by weight of snow, causing an egg to roll out and break. As the bird was endeavoring to incubate the remaining eggs in this poorly secured nest, I thought it best to remove the hazard by lifting the nest up from its original site and fastening with twine to the next higher whorl of branches. The eggs were successfully hatched, and the young reached the age of about seven days, when they, and probably one parent, were destroyed by an enemy unknown to me. Feathers of an adult robin were scattered beneath the empty nest. Two nests and sets of eggs were collected by myself, one of these sets consisting of six eggs, certainly an unusual number. Seven sets of two to four eggs were known to be successfully hatched. The snow-water flooded one nest and caused four eggs to be abandoned. Many nests were not looked into, but some that were known to be occupied previous to the snow were apparently deserted after June 23.

Three nests of Mountain Bluebird (*Sialia currucoides*). I removed a nest and set of six eggs from a pigeon-house that was on the inside of the railroad freight-house. The birds constructed another nest and presumably raised a fam-

ily in the same box. The other nest was situated in a knot-hole in a living aspen tree.

I am of the opinion that fledgelings were raised in but few of the one hundred and thirty nests exposed to snow and the Blue-fronted Jays; while most of the sixteen nests that were placed in cavities of trees, stumps, or rocks, escaped destruction of contents. The robins were seemingly unmolested by jays.

On leaving for Summit Station, July 9, I stopped for a few hours nest hunting along the state road at a distance of six to eight miles above Cisco and here I saw two Clarke Nutcrackers, one Hammond Flycatcher, three California Pine Grosbeaks, and a Sierra Hermit Thrush. All four are species of birds not observed at Cisco. I failed to discover the nests of any of them, however.

## BIRDS OBSERVED IN THE SUMMER OF 1912 AMONG THE SANTA BARBARA ISLANDS

By HOWARD WRIGHT and G. K. SNYDER

WITH TWO PHOTOS BY THE AUTHOR

ON JULY 1st, 1912, Mr. J. R. MacIntock, W. S. Wright, Emerson Roche and the writers left San Pedro, on a fifty-foot sloop, for a short trip among the islands which lie off this portion of the California coast.

Our first stop was Santa Barbara Island, where we arrived early on the morning of July 2, after having been becalmed nearly all night. While approaching the island, we saw many flocks of Cassin Auklets, a fact which was hardly to be expected since Mr. George Willett found only a few pairs breeding here the year before.

When the rattle of the anchor chain broke the stillness, a great flock of gulls arose and came clamoring toward the boat. They were very tame and came almost to our hands to devour the scraps from our breakfast table.

The day was spent in looking about the island. We found the gulls breeding in four separate colonies, all of which contained young. A single set of two, which turned out to be addled, were the only eggs of this species found. On the northern slope of the island was a large colony of California Brown Pelicans. There were several hundred nests containing young in all stages of development. A single set of *three* addled eggs served to intensify the impression of general prosperity in the colony, which gave every indication of rapid increase in numbers.

On the northwestern promontory we noted an adult Bald Eagle accompanied by a full-grown youngster. They circled about screaming loudly but seemingly having little fear of the intruders. A careful search of this territory failed to reveal any Cassin Auklet's burrows, so we concluded that their nesting was still confined to the adjacent rock, where Mr. Willett found them in 1911.

On the northeastern point of the island a single egg of the Xantus Murrelet was found, at the end of a short burrow under a rock. No bird was on the nest and though the egg was apparently fresh it was cold when found.

The second day at this island was spent in visiting a large colony of Brandt Cormorants. It was located near the water's edge, on the northern side of the island opposite the detached rock which is about a hundred yards from shore.

There were about three hundred and fifty nests counted, all of which contained from one to five eggs, many of them on the verge of hatching.

Early on the morning of the fourth we hove anchor and set sail for Anacapa Island. On rounding the northeastern point of Santa Barbara Island, five Tufted Puffins were flushed from the water. They were quite wild and we could not get within gun-shot of them. They probably were breeding on the little island on the northern side, where we found several likely looking burrows the day before, but could not gain entrance to them.

We anchored at Anacapa on the afternoon of the fourth and spent the time until dark trying to rid our clothes of the moisture which they had absorbed on the latter part of the trip.

Next morning, the three younger members of the party rowed along the coast to look over the country and its bird population. Within a few minutes



Fig. 24. TYPICAL NESTS AND NESTING SITE OF BRANDT CORMORANT; PRINCE ISLAND, NEAR SAN MIGUEL ISLAND, JULY 12, 1912

three Black Oystercatchers had been laid low and these proved to be the only ones seen on this island. At the east end we saw great numbers of Tufted Puffins, cormorants, gulls and pelicans; so we found an accessible place to climb the cliffs and were soon at the top. A long and diligent search revealed a few puffin burrows occupied by young; but the egg season seemed past. One burrow produced a dead *Xantus Murrelet* and a rather ancient egg.

Baird Cormorants nested in inaccessible places and they apparently had young, though we did not actually get to see them. The pelicans, though present in great numbers, were not breeding. There were a considerable number of nests, all empty with the exception of a single fresh egg found in one of them.

On a high cliff near the east end, the fresh remains of a Socorro or Black Petrel were found. The bird had been eaten by some bird of prey or possibly a rat, and the feathers were scattered about considerably. No nest was located,

though we nearly leveled that portion of the island in our attempt. By this time the wind was kicking up quite a sea and we hastened to return to the shelter of the sloop.

Early the next morning we rowed toward the west end of the island, and near the water's edge found nesting caves of the Pigeon Guillemot, containing about half-grown young. We set sail about noon for Santa Cruz Island; and the next few days were spent in loafing about the beautiful little harbors that this island affords. Various trips into the canyons netted little of unusual interest, though the numerous resident land birds were much in evidence.

It was not until the far end of the island was reached that the "prize find" of the trip was made. We had stopped to explore the "Painted Cave" from a scenic point of view, but once there the great number of Pigeon Guillemots present invited search for their nests. One large sloping ledge, which seemed particularly good, was being explored by the aid of a lantern with the hope of finding a guillemot's egg unhatched. The way was dark and as the lantern was flashed about to find secure footing it fell on a small bird crouched on the open floor of the ledge. The bird, evidently blinded by the light, was easily captured and proved to be an Ashy Petrel brooding a well incubated egg. Thus encouraged, a most careful search was made with the result that four eggs and one small young, together with the adults, were taken. The "nests" were all entirely exposed, though one was in a shallow hole in the rocky side of the cave. This in light of their usual breeding habits seems strange, because numerous fragments of rock which had fallen on the ledge afforded hiding places, and were utilized for this purpose by the Guillemots. A single addled Guillemot's egg was an incident of the search, while the young in all stages were quite numerous.

We went from the Painted Cave, on Santa Cruz, to Santa Rosa where we anchored over night. This island did not seem very promising and early in the morning of the next day, under double-reefed mainsail, we left for San Miguel, the most northerly and least often visited island of this group. After a long, weary day of sailing and salt water shower-bath combined, we anchored in the bay at about sundown.

This island, which is about six miles long and four miles wide, is nothing but a vast pile of continually shifting sand. The wind never ceases and a "calm" day there would be a storm most any where else. The bay is fairly well protected, as it opens toward the east, but even here the sand laden wind howls unceasingly. The one redeeming feature of this place is Prince Island, a small rocky island in the mouth of the bay. This big rock or little island, which is quite high and steep, is literally alive with breeding birds at this season of the year.

To this place we rowed on the morning of the 12th, and found an easy landing place for our skiff. Here in suitable places we found great numbers of breeding birds such as the California Murre, Tufted Puffin, Brandt Cormorant, and Cassin Auklet. A rising sea warned us that we must hasten back to the sloop while we could safely do so.

The next day we set sail on the return trip deeply regretting that we could not have explored Prince Island more fully.

The following is a list of birds observed upon the trip, together with brief comments on each:

**Lunda cirrhata.** Tufted Puffin. Probable breeding burrows found on the rock on northeast end of Santa Barbara Island. Five birds seen in this vicinity next day (July 3-4). The birds were quite numerous on the east end of Ana-

capa, but very few of their burrows were accessible. Those examined contained either young or egg-shells (July 5). Several birds noted flying about the west end of Santa Cruz (July 10). On Prince Island the largest colony was found. Numerous burrows examined contained young from a few days to several weeks old. The birds when disturbed circled over the water and returned to their burrows only to repeat the performance (July 12).

***Ptychoramphus aleuticus*.** Cassin Auklet. A number of these birds seen as we approached Santa Barbara and one was taken. A thorough search of the northwest end of Santa Barbara netted nothing but the wings of those birds whose bodies had been eaten, probably by cats (July 2-3). On Prince Island a very large colony nested on the northwest and north slopes, where there was ground in which it was possible for them to burrow. In many places the ground was so undermined by the nesting places of these birds as to render walking difficult. At this season of the year the eggs had all hatched, as all the burrows examined contained good sized young (July 12).

***Brachyramphus hypoleucus*.** Xantus Murrelet. One egg of this bird taken from a hole on the northeast point of Santa Barbara Island, and several wings found (July 3). On Anacapa, three dried-up remains, one whole egg and numerous shells testified to the breeding of this bird on the island during this or some previous season. No live birds were noted (July 5).

***Cephus columba*.** Pigeon Guillemot. These birds were seen carrying some material into inaccessible caves on the northern part of Santa Barbara Island, indicating that they had young (July 3). On Anacapa a pair were noted near the east end of the island. On the west end three nesting caves were found each containing a single well-grown youngster (July 5-6). These birds were breeding in considerable numbers at the Painted Caves on Santa Cruz (July 10). Numbers seen entering low caves on Prince Island (July 12).

***Uria troille californica*.** California Murre. At Prince Island there were several small colonies of these birds on the high overhanging ledges. The odor, filth and continual pig-like, grunting noises emitted by the numerous young made close inspection of these ledges quite an unpleasant task (July 12). Several eggs were collected, however, and they proved to be addled. One egg, in fact, which had been dug from the accumulations of guano, turned out to be an over-ripe specimen which tested the collector's stomach during the blowing operation.

***Larus occidentalis*.** Western Gull. The first night out, while becalmed in a heavy fog some ten miles from Santa Barbara Island, these birds were seen passing the boat, all flying unerringly in a southwesterly direction toward the island (July 1). The young of this species on Santa Barbara were pretty well grown and proved very agile when pursued. They had a very amusing habit of "playing ostrich" by tucking their heads under a thick weed and closing their eyes, leaving their downy bodies entirely exposed (July 2-3). Colonies containing young were also found on Anacapa (July 5) and on Prince Island (July 12).

***Larus heermanni*.** Heermann Gull. A number of these birds were seen near Santa Cruz Island (July 6).

***Puffinus creatopus*.** Pink-footed Shearwater. Seen in the channel between Santa Barbara and Anacapa islands (July 4).

***Puffinus griseus*.** Sooty Shearwater. Seen in company with the preceding species.

***Oceanodroma homochroa*.** Ashy Petrel. Found breeding at the "Painted Caves" on Santa Cruz Island (July 10).

*Oceanodroma*, sp. ? The remains of a Socorro or Black Petrel were found on Anacapa Island (July 5).

*Phalacrocorax auritus albociliatus*. Farallon Cormorant. The main colony of these birds on Santa Barbara was on the high bluff on the northwest part of the island. These nests, together with those of the pelicans, were built among the stalks of a kind of "marguerite" which grows abundantly at this point. The cormorant nests were built entirely of weed stalks and twigs which readily distinguished them from those of the following species, which were entirely of seaweed. The nests contained from one to four eggs or young (July 2). On Anacapa a few pairs had just finished nests on the cliffsides. These showed the same distinguishing materials used in construction.

*Phalacrocorax penicillatus*. Brandt Cormorant. A large colony nested on a low exposed ledge on the northwestern side of Santa Barbara Island. There were about 350 nests containing from one to five eggs or newly hatched young.



Fig. 25. YOUNG CALIFORNIA BROWN PELICANS ON SANTA BARBARA ISLAND, JULY 2, 1912

This colony had evidently been used for some years as the nests were very close together and well cemented with guano. The birds were very much more wild than the preceding species. On the rock before referred to, about a hundred yards away, was a fair-sized colony in which all the nests contained nearly full-grown young. On our approach they took to the water where their awkward attempts to dive resulted in nothing more than the immersion of their heads (July 3). On Anacapa a few pairs nested on the cliffs, over the entrances to caves mostly (July 5). Prince Island supported another colony of these birds. The nests contained from one to five eggs (July 12).

*Phalacrocorax pelagicus resplendens*. Baird Cormorant. Several small colonies of these birds nested above the entrances to caves on the west end of Anacapa Island. The birds were extremely shy (July 6).

*Pelecanus californicus*. California Brown Pelican. On Santa Barbara Island,

between three and four hundred birds were breeding in company with Farallon Cormorants. All nests contained young still in the downy stage (July 2). On Anacapa were a large number of birds which apparently were not breeding (July 5). These birds were very numerous about Prince Island, but we did not see any breeding places as we visited only the west end of the island (July 12).

**Ardea herodias.** Great Blue Heron. A single bird seen on Anacapa July 5, and one on Santa Cruz July 7.

**Arenaria interpres morinella.** Ruddy Turnstone. One seen at close range near Pelican Harbor, on Santa Cruz, and positively identified (July 8).

**Haematopus bachmani.** Black Oystercatcher. Three taken on Anacapa July 3, and one taken and others seen on Prince Island July 12. They were easily approached.

**Zenaidura macroura marginella.** Western Mourning Dove. Fairly common in the canyons of Santa Cruz Island. A nest found in a small tree about seven feet from the ground contained one egg on July 7.

**Haliaeetus leucocephalus leucocephalus.** Bald Eagle. One adult and a young one seen on Santa Barbara Island (July 3). One seen on a high cliff at Santa Cruz on July 7.

**Falco peregrinus anatum.** Duck Hawk. One seen on Anacapa (July 3), and two on Prince Island (July 12). They were very wild.

**Falco sparverius.** Sparrow Hawk. One seen in the canyon back of Pelican Harbor on Santa Cruz (July 7).

**Colaptes cafer collaris.** Red-shafted Flicker. Abundant among the pines on Santa Cruz.

**Sayornis nigricans.** Black Phoebe. Seen in the canyons on Santa Cruz.

**Empidonax difficilis difficilis.** Western Flycatcher. Found breeding abundantly on Santa Cruz. One nest was in a cave the floor of which was wet by the high tides. Two eggs of this species were found laid on the bare rock in a hole in a large boulder.

**Otocoris alpestris insularis.** Island Horned Lark. Found on Santa Barbara Island.

**Aphelocoma insularis.** Santa Cruz Island Jay. This species was very common in the wooded districts of Santa Cruz. Two full-grown immatures were taken (July 7).

**Corvus corax sinuatus.** Western Raven. These birds were common in the canyons on Santa Cruz Island. Their nests were found in crevices in the cliffs overlooking the water. These were of course unoccupied at this season of the year. An old nest undoubtedly of this species was found on a ledge scooped out of the walls in one of the sandy canyons of Santa Rosa Island.

**Sturnella neglecta.** Western Meadowlark. This bird's notes were heard many times while we were on Santa Cruz, and one morning a bird flew across Pelican Harbor. Noted also on Santa Rosa Island (July 10).

**Carpodacus mexicanus clementis.** San Clemente House Finch. Seen on all the islands visited.

**Melospiza melodia graminea.** Santa Barbara Song Sparrow. Found on Santa Barbara Island wherever brush afforded protection. Young were found, but no occupied nests.

**Pipilo maculatus clementae.** San Clemente Towhee. Adults and good-sized young were seen on Santa Cruz Island.

**Hirundo erythrogastra.** Barn Swallow. Birds seen entering caves on Santa Barbara Island. On Santa Cruz a nest containing young was discovered on a

cliff overhanging the ocean. A nest was found on Anacapa which contained a single addled egg.

**Vermivora celata sordida.** Dusky Warbler. Very abundant in the wooded parts of Santa Cruz Island.

**Salpinctes obsoletus obsoletus.** Rock Wren. Adults and full-grown young seen on the rocky slopes of Santa Barbara. Also noted on Anacapa.

**Thryomanes bewicki nesophilus.** Santa Cruz Island Wren. Common among the fallen pines on Santa Cruz. Young just able to fly were seen. One nest, containing four eggs on the point of hatching, was found in a hole in the canyon wall, about seven feet up, made of sticks and feathers.

**Psaltriparus minimus californicus.** California Bushtit. One flock seen in the brush on Santa Cruz Island on July 7.

## FROM FIELD AND STUDY

**Late Fall Occurrence of the Black-headed Grosbeak.**—On November 23, 1912, I took a specimen of the Black-headed Grosbeak (*Zamelodia melanocephala*) at Riverside, California. The occurrence is of interest on account of the date, which is so far from the ordinary movement of this species in California, as well as from the fact that the bird is in full autumnal plumage.

So far as I have been able to learn, with the courteous assistance of Mr. J. Grinnell, there is no published account of the bird's having been taken in the United States otherwise than in the breeding or in the first juvenal plumage. The specimen at hand is not in either of these plumages, and appears fresh and unworn. Beebe in "Two Bird Lovers in Mexico" speaks of the grosbeaks in their dull winter plumage looking like large sparrows; but so far as I can learn, the fall plumage is not familiar to many CONDOR readers. The specimen was a female with well developed ovaries, which would suggest that the bird had passed one breeding season and might be considered an adult. Mr. Grinnell offers the suggestion that in this species first-year individuals may perhaps be subject to a period of autumnal sexual activity, as is probably the case with certain of the resident species of the southern part of the state. The female in hand may thus be a bird of the year. It seems now impossible to state with certainty that the bird is either adult or juvenal.

The plumage is notable for the rich tan suffusion of the breast, the obscuring of white spots by buffy feather tips, the fact that spots have not been lost by sloughing off of barbs such as occurs in worn plumages of the species, and that the upper tail-coverts bear indistinct transverse bars.

The specimen has been deposited in the Museum of Vertebrate Zoology of the University of California and may be referred to as no. 23431 of the collection of that institution.—  
LOYE MILLER.

**The Results of Some Miscellaneous Stomach Examinations.**—The following notes on the results of stomach examinations of several different species of birds should be of interest. The stomach contents does not represent in all cases the usual kinds of food taken by the species. The greater interest generally attaches to the unusual. It is important that both the usual and the unusual articles of diet be known.

**Porzana noveboracensis.** Yellow Rail. Rincon Valley, Sonoma County, California, November 17, 1912. Stomach contained 18 clover seeds (*Trifolium* sp.) and grass.

**Archibuteo ferrugineus.** Ferruginous Rough-leg. Cotati, Sonoma County, California, November 25, 1912. Stomach contained seven meadow mice (*Microtus californicus*). This appears to be the first definite record of a Ferruginous Rough-leg taken within the state for a number of years.

**Bubo virginianus pacificus.** Pacific Horned Owl. Berkeley Hills, Berkeley, California, December 15, 1912. Stomach contained two meadow mice (*Microtus californicus*) and 27 Jerusalem crickets (*Stenopelmatus* sp.).

**Geococcyx californianus.** Roadrunner. San Diego, San Diego County, California, September, 1912. Stomach contained a large horned toad (*Phrynosoma blainvilliei blainvilliei*).

**Chordeiles virginianus hesperis.** Pacific Nighthawk. Dutch Flat, Placer County, California, August 22, 1912. Stomach contained 1 wood-boring beetle (*Elaphidion* sp.), 17 wood-boring beetles (*Crioccephalus agrestis*), 3 click-beetles (Elateridae), 3 curculios (*Balaninus* sp.), 3 metallic wood-boring beetles (*Melanophila* sp.), 1 grasshopper, 16 moths, 3

stink-bugs (*Podisus* sp.), and 2 stink-bugs. All of these insects are considered injurious. The specimen from which this stomach was taken is no. 23181, University of California Museum of Vertebrate Zoology.

*Sturnella neglecta*. Western Meadowlark. Los Banos, Merced County, California, April 21, 1911. Stomach contained over 40 plant lice (*Aphis brassicae*) along with parts of 8 ground beetles (*Pterostichus* sp., *Blapstinus* sp., *Coniontis subpubescens*), 1 snout beetle (order *Rhynchophora*) and parts of 12 crickets (*Gryllus pennsylvanicus*).

*Planesticus migratorius propinquus*. Western Robin. Orchard, Big Pine, Inyo County, California, January 23, 1911. Stomach contained 192 small cutworms.—H. C. BRYANT.

**The Stephens Fox Sparrow in Marin County, California, once more.**—The recent cold spell and unusual snowfall in California during the first half of January, 1913, brought to mind the association of such an occurrence with the presence of Stephens Fox Sparrows on the higher ranges at San Geronimo, Marin County, California (See CONNOR, xiv, March, 1912, p. 63).

On the first opportunity that offered, which happened to be January 21st, a trip was made to the spot where these birds had been seen on other occasions and under similar circumstances. Frost and ice were in evidence that morning on all sides, but these disappeared as the bright sun warmed up the atmosphere. The top of the range was reached by eleven o'clock, and a careful search for the expected visitors was made. At first none was to be seen, but finally one was observed to pop up out of a ceanothus bush and at sight of a human being to dart back into his dense refuge, while all efforts to bring him to view again were fruitless.

The same thing happened with another, after which two hours of watching, alternated with tramping through the brush, were passed before another was seen. This one was almost stepped upon in a little thinner brush, and in his fright stayed on top of a bush long enough to be fatal. It was very close shooting, but a good many feathers and the bill remained—enough to identify the bird positively as *Passercella stephensi*, as was expected. It proved to be a female, as were all the others in our collection from this locality. No more were found on this date, nor was a single one identified on a second trip made to the spot four days later, though a few slight sounds were heard that seemed to indicate the presence of one or two.

As a rule some of the numerous subspecies of *Passercella* that winter along our California coast are very numerous at San Geronimo at this season; but this year they seem extremely scarce, and only one was seen in the two days tramping above spoken of.—JOSEPH MAILLIARD.

**Artificial Hatching of a Cassin Auklet.**—While studying birds on Off-shore Rock, Humboldt County, California, in company with F. J. Smith, I took from a burrow a stone-cold Cassin Auklet's egg, advanced in incubation, and placed it in a fish basket together with other eggs.

This was about noon on July 21, 1912. The basket was carried about for several hours, then placed in a boat for an hour, removed to a train for a thirty mile run and at 7 p. m. carried home, where it was placed on a table and left over night. The next morning peeping was heard from within the basket and on hunting out the egg from which the sound came, it was placed in a cigar box on a bed of cotton, the box then placed in a warm oven. At 4 o'clock p. m. the same day, July 22, a wet, sticky, yolk-covered auklet, struggling for freedom, broke through the shell.

Left on the cotton in the box it was placed in the warm sunshine to dry. After being thoroughly dried, Mr. Smith's mother fed it bits of boiled egg, which it seemed to relish and stretched its little neck to receive.

The auklet was kept warm in cotton and fed regularly for several days. Its little body grew to a length of 3.75 inches, with an extent of wings of exactly 3.75 inches also, the down on the bird's body fluffing out thick and warm. On July 26, at just 10 o'clock a. m., our little Cassin Auklet (*Ptychoramphus aleuticus*) passed away, leaving no trace of reason why it had died, with all the care that had been given it. The bird lived just ninety hours. It is now skin no. 275 of my collection.—C. I. CLAY.

**Gambel Quail (*Lophortyx gambeli*) in Colorado.**—Regarding the status of this bird in Colorado I think I may be able to throw some light. It has for some years been believed to be a rare resident in the southwestern corner of the state. Prof. Cooke gives the Morrison record of these birds having been taken forty miles southwest of Fort Lewis. Sclater

in his "History of the Birds of Colorado", in speaking of this record says that it would carry the species well over into New Mexico, which it probably would as Fort Lewis is only about twenty miles north of the New Mexico line.

That being true, this may possibly be the first record of its having been actually taken in the state. In the latter part of September, 1912, in company with Prof. Figgins I took a collecting trip through the southwestern quarter of Colorado. Our first work was done in the Uncompahgre Valley after the California Quail (*Lophortyx californica*). Up to this time *L. californica* was supposed to be the quail of this section of the state. This valley, or the part of it that we worked, is between 100 and 120 miles north of the New Mexico line, and between 54 and 60 miles east of the Utah line.

We took ten birds and all were *L. gambeli*. Not a specimen of *californica* did we find in our two days' drive up and down the valley. *Gambeli* was everywhere and so abundant in places that I could have taken them by the hundred if I had so wished to do. Later, in correspondence, a resident there said he thought there were two species of quail in the valley, and that he would be glad to send us some of the other kind. He sent us two lots of them, but they all proved to be *gambeli*.

I might add that our trip took us through Montezuma and La Plata counties, the two southwestern counties of the state, but that we failed to learn of Gambel Quail in either of these counties. Of course this does not necessarily mean they are not there. This does, however, settle the fact that they are residents of the state and that they are locally abundant.—L. J. HERSEY, Curator of Ornithology and Mammalogy, Colorado Museum of Natural History.

**Some Winter Notes From the Bitter Root Valley, Montana.**—On December 26, 1912, I saw a Townsend Solitaire (*Myadestes townsendi*) eating the berries from a red cedar. It was very tame, allowing me to approach within twenty feet before leaving, then only flying a little way. A few minutes later on the same day, I flushed a Long-billed Marsh Wren from a cattail swamp. Within a hundred yards of the wren were six Red-winged Blackbirds.

This is the warmest valley in Montana, so we have here birds which usually winter farther south. Western Meadowlarks winter here abundantly. Mallards and Killdeer are always fairly common, Wilson Snipe are regular winter visitants, and Golden-eyes are rare winter visitors, arriving in the valley about January 1, and leaving about March 1. A Mourning Dove was seen two miles southwest of Corvallis during December, 1912.—BERNARD BAILEY.

**A Northern Winter Station for the Band-tailed Pigeon.**—On the south side of the Pit River, about two miles from its junction with the Sacramento is a certain hillside to which Band-tailed Pigeons (*Columba fasciata*) regularly resort during the winter season. I am accustomed to pass that point several times each year, on my way from Pitt, the Southern Pacific junction, to Wyndam, on the line of the Sacramento Valley and Eastern. The motormen and conductors told me that they had frequently seen flocks of pigeons there, and on one occasion I was fortunate enough to see a small flock myself, as we passed by. On February 22, 1913, the motorman stated that he had the previous week seen a flock of two or three hundred. It has seemed to me remarkable that these flocks should come yearly to the same hillside, where they sometimes linger for many days, and further remarkable that they are not observed elsewhere in the run of twelve or fifteen miles from Pitt to Bully Hill.—C. H. GILBERT.

**Early Arrival of the Black-headed Grosbeak.**—On the morning of February 15, 1913, about ten o'clock, there appeared at my window-shelf bird-table a gorgeous male Black-headed Grosbeak (*Zamelodia melanocephala*). He helped himself to the bread on the board and when frightened flew into a nearby elderberry tree. He came back to the table several times and was about for most of the forenoon. I have not seen him since. My earliest record for these birds last year is March 25, when a male came to this same bird-table. Not only is this early appearance of the Black-headed Grosbeak of interest, but the fact that he was in full summer plumage seems worthy of note. He was one of the bright-plumaged males, not having the dull coloring that some of these males have even in the summer time.—HARRIET WILLIAMS MYERS.

# THE CONDOR

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## EDITORIAL NOTES AND NEWS

The Business Manager's report of the Cooper Club's financial standing at the close of the year 1912 is a model commercial document. The itemized statements of receipts and expenditures are accompanied by a full inventory of Club property. While lack of space prevents giving the 7-page report in full, the following summary shows the main points as regards money transactions:

Balance in bank, January 2, 1912....	\$ 333.35
Dues received during 1912.....	691.22
Subscriptions during 1912.....	167.20
Sale of Avifaunas.....	24.50
Sale of back numbers of CONDOR.....	121.60
Donations, etc.....	3.00
Advertising.....	43.45
<b>Total Receipts.....</b>	<b>\$1384.32</b>
Cost of printing CONDOR.....	760.98
Cost of illustrations.....	167.50
Club expenses.....	43.96
Miscellaneous expenditures, chiefly connected with CONDOR.....	168.49
Cost of store-room.....	61.85

<b>Total Expenses.....</b>	<b>\$1202.78</b>
Balance in bank January 2, 1913.....	\$ 181.54
Cash on hand, not deposited.....	31.59
Total available cash.....	213.13
Outstanding 1912 bills payable.....	191.35

Net Balance.....\$ 21.78

The financing of Avifaunas 7 and 8 is accounted for separately. Their cost (\$500.00) was raised by donation.

Mr. Harry S. Swarth, for nearly five years Curator of Birds in the California Museum of Vertebrate Zoology, transferred his affiliation on February first to the new Museum of History, Science and Art, in Los Angeles. The change is accompanied by considerable increase in responsibility as well as in remuneration. While we see in this advancement a well deserved recognition of Mr. Swarth's efficiency there is one element that seems to us regrettable, namely, that the prospects point towards his time being henceforth so fully occupied with executive routine that ornithology will receive correspondingly less attention from his judicious and accurate pen.

In the great majority of cases nowadays, when a young man reaches an advanced degree of proficiency in bird-study, the ability thus developed makes him desirable in some executive berth, and the matter of salary concludes the argument. At present, there appear to be practically no purely research positions in ornithology, offering anywhere near an adequate livelihood, available to the talented and ambitious young student anywhere in America. Very nearly all the published ornithology turned out is a bi-product of busy men's activities, which are by necessity centered elsewhere.

The following excerpts from a recent circular letter sent out from the Smithsonian Institution show progress in Mr. A. C. Bent's undertaking to carry on the life history project so ably begun by Bendire.

In 1910 arrangements were made with the Smithsonian Institution for the completion of the work on the life histories of North American birds, which was originally projected by Major Charles E. Bendire, and of which the Institution published two volumes. For over twenty years Mr. Bent has devoted his spare time to visiting various points of ornithological interest in North America for the purpose of collecting the information, photographs and specimens necessary for an extensive work on the breeding habits of North American birds.

Major Bendire's first volume began with the Gallinae, A. O. U. number 289, and his second volume ended with the Icteridae, A. O. U. number 513, including 223 species in the two volumes. Considering the fact that comparatively little is known about many of the water-birds and that many of the ocean wanderers and stragglers need little more than passing mention as American birds, it seems safe to count on covering all of the first part of the A. O. U. check-list, up to the point at which he began, in two volumes. The present plan, which is subject to revision, is to have the first of the new volumes include the Anatidae at least as far as the geese; but as the life histories of many of the Tubinares will be decidedly brief, it may be well to include all of the Anatidae in this first volume.

The work of gathering information, material and contributions for the life histories has been partially organized on a very satisfactory

basis. As it is impracticable, if not impossible, for any one man to know and keep in touch with all of the competent observers and contributors in North America, it has seemed best to place this work in the hands of competent leaders in various sections, who are noted and willing to take charge of the work in their particular localities, to endeavor to arouse interest among their acquaintances in collecting information, to secure contributions from competent and reliable observers, and to pass judgment on the accuracy and reliability of whatever they send in for publication. The following well-known western ornithologists are among those who have already generously volunteered to serve in this capacity: Mr. Edw. K. Warren for Colorado; Mr. Aretas A. Saunders for Montana; Mr. Allan Brooks for British Columbia; Mr. S. F. Katoun for Washington; Mr. Wm. L. Finley for Oregon; and Mr. A. B. Howell for California.

Nearly all of these collaborators have reported more or less success in arousing interest in the work among their correspondents, and considerable material has been sent in and filed away for future use; but in far too many cases the results of their labors have been disappointingly small.

Eighteen life histories have already been written, but as they contain mainly the results of the author's personal observations, together with such quotations from published material as seemed desirable to make them more nearly complete, they are open to additional contributions from others, as well as final revision. Preference will always be given to original contributions; quotations from published literature will be reduced to a minimum and contributors will be given full credit for whatever material they furnish.

Mr. Bent already has in his own field-notes nearly enough material to write the life histories of over half of the species to be included in the next volume, but, even after exhausting all the material contained in the published literature on the subject, there are surprisingly few species regarding which we have sufficient material for even fairly complete life histories. An extensive study of the published material brings to light some interesting facts; a vast amount of data has been published on migration and distribution; nesting habits have been written up more fully than any other phase of the subject, and much has been written about the food of birds, particularly from an economic standpoint; but the exact period of incubation and of the development of the young has been carefully worked out for very few species, the sequence of plumages in the water-birds has been sadly neglected, and comparatively little has been published on winter habits.

For many of the water-birds, only the most meagre life histories could be culled from the published literature on the subject. To collate and compile in an extensive work on this subject all that has been published relating to the life histories of North American birds is an undertaking well worth while; but the value of any work of this kind is greatly en-

hanced by a liberal addition of original material, which was a marked feature of Major Bendire's work.

There are few ornithologists who cannot find the time to study effectively some phases of the life histories of one or more species which are readily accessible. There is much information which is badly needed and which could easily be obtained; much information of value lies buried in the field-notes of nearly every observer; even fragmentary notes are often valuable as contributions to life histories; and it is only by collecting as much of this material as possible that we can hope to get anything even approaching completeness.

All possible information is desired on the following points in the life histories of as many species as are available for study: 1. Extent and dates of spring migration. 2. Date of arrival on breeding grounds. 3. Mating performances. 4. Location of nest. 5. Construction of nest. 6. Number of eggs and date of laying. 7. Period of incubation. 8. Do both sexes incubate? 9. Number of broods in a season, with dates. 10. Food and development of young. 11. Sequence of plumages to maturity. 12. Seasonal moults of adults. 13. Food and feeding habits of adults. 14. Flight; swimming or diving habits. 15. Behavior with relation to other species. 16. Vocal powers and their significance. 17. Extent and dates of fall migration. 18. Winter home and habits.

Californians should correspond with our own state representative, Mr. A. B. Howell, Covina, California.

## COMMUNICATION

### MISINFORMATION

Editor THE CONDOR:

As an instance of crass scientific ignorance I believe that Mr. Wm. D. Boyce, as evidenced in his "Illustrated South America", recently published by Rand, McNally & Co., quite surpasses anything I have seen. He mentions finding in Peru "doves' eggs, which are found deposited in the sand on the banks of the streams. The doves do not 'set' on their eggs, but let the sun hatch them out. The eggs do not have a shell like our birds' eggs, but a tough film like a snake egg." I assure you this is *verbatim*, and written by a man who has travelled extensively and apparently for the purpose of gathering and publishing statistics!

In other places he speaks of the "cow fish" in Peru and of "Potassium iodine" in Chili!

Of course one does not expect all travellers to be infallible; but with so many scientific institutions to refer to it seems an unpardonable carelessness to put on record, in a book supposed to be authentic, such absurdities as the above. It is of but slight use to publish at this late date the correction, and inform the distinguished author that doves do not lay soft-shelled eggs in sand, leaving that to the alligators, turtles and iguanas; or that the "cow fish" is no fish at all but a mammal; or that "Potassium iodine" is as impossible a

compound as "Lime lead", although Potassium iodide is found in Chili! However, you may find space for this, and I trust a copy will find its way into the hands of Mr. Boyce.

Very truly yours,

HENRY B. KAEDING.

February 2, 1913.

## MINUTES OF COOPER CLUB MEETINGS

### SOUTHERN DIVISION

DECEMBER.—The December meeting of the Southern Division of the Cooper Ornithological Club was held on December 26, 1912, at the Museum of History, Science and Art, Los Angeles, California. On motion duly made and seconded, Mr. Daggett was appointed Temporary Chairman. The following members were present: Messrs. Chambers, Cookman, Daggett, Dickey, Fisher, Hubbs, Lamb, Rich, van Rossem, and Law.

The minutes of the November meeting were read and approved, and the minutes of the Northern Division for December were read. Upon motion by Dr. Rich, seconded by Mr. Lamb and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership, Mesdames Eugene Overton, Edwin H. Husler and F. B. Bicknell, and Messrs. W. B. Bell, Frank C. Clarke, Alf Eastgate and Joseph A. Sweeney, these names having been proposed at the last meeting.

Applications for membership were presented as follows: Charles S. Moore, P. O. Box 222, San Diego, Calif., proposed by A. M. Ingersoll; M. B. Rice, Cascadia, Oregon, proposed by W. L. Finley; John McB. Robertson, Buena Park, Orange County, Calif., proposed by F. S. Daggett; O. P. Silliman, Castroville, Calif., proposed by W. Lee Chambers. Upon motion by Mr. Lamb, seconded by Dr. Rich and duly carried, the Southern Division accepted with regret the resignation of Mr. E. W. Gifford.

The meeting then proceeded to the nomination of officers for 1913, with the following result: For President, J. E. Law; for Vice-President, Howard Robertson; for Secretary, A. B. Howell.

The Secretary then read a paper by Mr. Virgil W. Owen entitled "Notes on the Nesting of the Heerman Gull off the Southwest Coast of Mexico." Adjourned.—J. E. Law, *Secretary*.

JANUARY.—The January meeting of the Southern Division of the Cooper Ornithological Club was held on January 30, 1913, at the Museum of History, Science and Art, Los Angeles, California. On motion duly made and seconded, Mr. Daggett was appointed Temporary Chairman. The following mem-

bers were present: Miss Althea Sherman, Messrs. Blain, Chambers, Daggett, Grey, Layne, Miller, Rich, Zahn, and Law, and as a visitor, Mr. W. E. Lewis, of Gate, Oklahoma.

The minutes of the December meeting were read and approved. Upon motion by Dr. Rich, seconded by Mr. Zahn, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Messrs. Charles S. Moore, M. B. Rice, John McB. Robertson, and O. P. Silliman, proposed at the last meeting.

Applications for membership were presented as follows: E. E. Everett, Ventura, Calif., proposed by J. S. Appleton; Mable C. Gage, Worcester, Mass., proposed by J. Grinnell; Claus Johan Murie, 809 Yeon Bldg., Portland, Oregon, proposed by Stanley G. Jewett; John B. Perrin, Tucson, Arizona, proposed by A. B. Howell; Asa Sleeth, 1025 Michigan Ave., Portland, Oregon, proposed by Stanley G. Jewett.

The Secretary then read the complete report of the Business Managers for the year 1912, showing a decided progress in the financial affairs of the Club. THE CONDOR has become practically self-supporting, and it is hoped that before long the Business Managers will be able to arrange to publish Avifaunas without calling for private subscriptions. Upon motion by Mr. Miller, seconded by Dr. Rich, and duly carried, the report of the Business Managers was accepted.

Upon motion by Mr. Zahn, seconded by Mr. Layne, the Chairman was instructed to cast the unanimous ballot of those present electing for 1913 the officers nominated at the last meeting, as follows: President, J. E. Law; Vice-President, Howard Robertson; Secretary, A. B. Howell. Adjourned.—J. E. Law, *Secretary*.

### NORTHERN DIVISION

JANUARY.—The regular monthly meeting of the Northern Division was held at the Museum of Vertebrate Zoology, Berkeley, Thursday evening, January 16, with vice-president Carriger in the chair. The following members were present: Mrs. H. W. Grinnell, and Messrs. Bryant, Chandler, Carriger, Gee, Grinnell, Heinemann, Loshinski, Shelton, Smith, Storer, and Swarth. Mr. E. P. Rankin was a visitor.

The minutes of the December meeting were read and approved, as also the Southern Division minutes for November and December. Candidates for admission to the Club, proposed at the last meeting, were elected as follows: O. P. Silliman, Castroville, Calif., and M. B. Rice, Cascadia, Oregon. One new name was presented, E. E. Everett, Ventura, California, by J. S. Appleton.

A communication from the secretary of the Pacific Association of Scientific Societies was read, relative to the following points: (1) A request to vote upon the proposed admission of the Puget Sound Section of the American Chemical Society into the Association. (Answered affirmatively.) (2) As to whether the Cooper Club planned to hold a meeting at Berkeley in April, as part of the annual meeting of the Association. (Yes.) (3) A query as to the present membership of the Cooper Club. (4) A notice that the annual dues of the Club were now payable.

In the absence of Mr. Taylor, chairman of the committee on the conservation of wild life, H. C. Bryant gave a short verbal report of the recent activities of the committee.

Owing to the impossibility of the present incumbent continuing to act as secretary of the Northern Division, his name was withdrawn from nomination and the name of Tracy I. Storer substituted. The election of officers for 1913 gave the following results: President, H. W. Carriger; Vice-President, H. C. Bryant; Secretary, T. I. Storer.

Business being disposed of, the remainder of the evening was devoted to a paper by A. C. Chandler, on "Experiences with Tamed Wild Birds". Adjourned.—H. S. SWARTH, *Secretary*.

FEBRUARY.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, California, on February 20, 1913, with President Carriger in the chair. The following members were present: Mrs. Grinnell, Miss Atsatt, Messrs. Bryant, Carriger, Chandler, Grinnell, Shelton, A. G. Smith, Stock, Stone, Storer, and Taylor. Mrs. Taylor, and the Misses Bruckmann, Dodge, and Little were present as visitors. The minutes of the January meeting were read and approved and the minutes of the Southern Division for January were read.

Mr. E. E. Everett of Ventura, California, was elected to membership. The following applications for membership were presented: Mabel C. Gage, Worcester, Mass., and Thomas Trenor, 1501 Scott St., San Francisco, California, proposed by J. Grinnell; Claus Johan Murie, and Asa Sleeth, both of Portland, Oregon, proposed by Stanley G. Jewett, and John B. Perrin, Tucson, Ariz., proposed by A. B. Howell.

Mr. Joseph Grinnell gave a brief summary of the report of the Business Managers of the Club for 1912. The report was heartily approved.

Mr. W. P. Taylor, Chairman of the Committee on the Conservation of Wild Life, then introduced the following resolutions:

Resolved: that the Northern Division of the Cooper Ornithological Club, realizing that California is doomed to become practically birdless and gameless in ten years unless present measures regulating wild life are enforced and added to, does hereby request the members of the California State Legislature of 1913 to pass, without amendment, the Flint-Cary bill to prohibit the sale of wild game, as being a remedial measure which would be in the interest of every citizen of the State of California, and which would be constitutional and effective.

Resolved: that the Northern Division of the Cooper Ornithological Club, realizing the tremendous importance of rigorous protection of non-game birds, does hereby urge that no measure be passed removing protection from any of the non-game birds in any section of the State, particularly the robin, meadowlark, and blackbird.

Mr. Taylor moved that the foregoing resolutions be spread upon the minutes of the meeting and that copies be sent to each member of the Committees on Fish and Game of both houses of the Legislature, and to the Secretary of the Southern Division, accompanied in each case by a letter of transmittal from the Secretary, and that the Southern Division be asked to adopt similar resolutions and to transmit them in a similar manner. The motion was carried.

Mr. Taylor moved that it be declared the sense of the meeting that the urgency of the situation as regards conservation demands that each individual present write letters to his Senator and Assemblyman, strongly urging the passage of the Flint-Cary bill to prohibit the sale of game, and the defeat of all measures designed to remove protection from any of the non-game birds, especially the robin, meadowlark, and blackbird.

Mr. Taylor further reported that a "Western Wild Life Call" was issued on February 7th, and that now practically the whole edition of 15,000 copies has been distributed. Progress along the whole line of game conservation was reported. The State of Oregon has passed a no-sale bill so that California is now surrounded on all sides by no-sale territory.

A vote of thanks was extended to Mr. H. S. Swarth for his services to the club in the position of Secretary of the Northern Division.

Business of the evening being disposed of, Mr. Alfred Shelton read a paper entitled "Woodpecker Notes" the material for which was gathered in Sonoma County during a residence of several years. After discussion of the paper the meeting adjourned.—TRACY I. STORER, *Secretary*.

# CALIF

California has unique claims upon the interest of the world. From Point Barrow to Cape Horn there is no name better known nor mightier to conjure with than that of this golden-haired mistress of the Argonauts who has become the accomplished hostess of the nations. We who live here know best how our shores are thronged continually by seekers of health, sunshine, fortune, romance, and all earthly delights, and how unerring is the return of such as think to shake off the spell once fastened. We sit at the focus of desire, and yet so bountiful and varied are the marvelous resources of our State, that not half has yet been claimed, and the bloom of nature is still unsullied. Nature's story is not trite with us, and we long to share with the widest circle of friends the freshness of our youthful joys. A book on "The Birds of California" is not simply "another bird-book," but *the* book which, outside of one treating of your own State, you will enjoy most of all. And you are coming to California anyway. Of course you are. Everybody worth while is, to visit, or rest, or dream, to retrieve broken fortunes, or recuperate, or luxuriate, or-or *study birds*. *BIRDS!* Why, we have 531 kinds of them—more by over a hundred than any other state in the Union can show. Do you wonder that we are a little self-conscious? or very insistent that we have got a good thing and need help to enjoy it?

Well, anyhow, we believe that a work on "The Birds of California" ought to be supremely beautiful and very satisfying. We are going to do our best, and we want your interest, *your help, YOUR ENTHUSIASM, NOW.*

Success, a success is already assured. We purposely delayed this announcement until that point should be reached, but now that it is reached, we want to act quickly, so as to ensure the very largest success possible. We want to build a larger, brighter, better book than we first promised, and we know that this will be possible if we receive promptly the endorsement we are asking for. Don't wait till the hard work is all done and the other fellows have received all the glory. Help yourself to one of the best editions now and enjoy both the satisfaction of the books themselves and the consciousness of having participated in a public-spirited service. On the next page we are going to tell you how you can do this; but first, we want to remind you:

That the largest success of the proposed work depends upon *cooperation*.

That the realization of our present plans will justify present sacrifice on the part of any subscriber.

That we have conscientiously graduated the expenses of our undertaking so as to allow the financially strong to bear the burdens of the less able. The Patrons are frankly expected to bear a disproportionately heavy share of the "undertaking cost" of the enterprise. If the Patron does not get quite all he is paying for in sheer physical values, the Stockholder and Large Paper subscribers are thereby getting a great deal more than they are asked to pay for.

That there is a place in our endeavor for every sincere bird and book-lover, however humble.

That we are going to achieve, throughout, the best that skill and experience can elaborate from the best materials that money and taste can produce.

That we shall take a far greater pride in delivering to our customers a set of books which fulfil their fondest expectation than we shall in paying cash dividends to our stockholders (who, of course, are in this case the subscribers themselves). And, lastly,

That we will not hurry unduly nor scamp our work at any point. We confidently expect to go to press September 1st, 1915, and to make deliveries in May, 1916; but if for any reason we require more time, we definitely reserve the right to employ another year without reproach or liability.

## A SPECIAL OFFER TO MEMBERS OF THE COOPER ORNITHOLOGICAL CLUB

Our enterprise being a purely cooperative one, we have for the sake of convenience in administration organized a stock company under the laws of this State. Our authorized capital is \$75,000, and of this we require \$30,000 to bring our work to press. (The press expenses themselves will stand from \$35,000 to \$75,000 more, according to the number and quality of the books ordered; but this item will be self-insuring). We are offering therefore to subscribers only, 300 shares of our stock of the (original) par value of \$100 each (now \$110), on the basis of one share to each Stockholder subscriber, and five to each Patron subscriber. Of this amount 190, yielding an income of \$19,000, has already been sold, and the current price to the public has risen to \$110 per share. But we offer hereby the remainder of 110 shares to members of the Cooper Ornithological Club only, for a limited time or until sold out, *at par*, payable in four annual instalments of \$25 each.

*The stock so subscribed for yields dividends payable in books.* That is to say, if you subscribe for one share of stock, paying \$25 down, and \$25 the first day of each January thereafter until the sum of \$100 has been paid, you will receive as a *guaranteed dividend* a set of the Stockholders' Edition of "The Birds of California"—a set which, if paid for on



# THE BIRDS OF

## THE ENTERPRISE

In November, 1910, in response to an invitation tendered by several prominent members of the Cooper Ornithological Club, William Leon Dawson, the senior author of "The Birds of Washington," came south to look over the field, and, if favorably impressed, to propose plans for the preparation of a splendid and elaborate work upon "The Birds of California." His plans were submitted to both divisions of the Club and enthusiastically ratified; and the members of the Club pledged themselves to co-operate by every means in their power toward the success of the enterprise. A quiet personal canvass of support was at once begun, and the results obtained justified the organization of "The Birds of California Publishing Company" the following spring, viz., in April, 1911, with an authorized capitalization of \$75,000. The canvass has so far progressed that the value of book subscriptions in hand already exceeds the working capital required, viz., \$30,000; so that we are ready to make our plans public and to invite final action.

The scope of the proposed work is virtually that of the Washington book, save that it is to be rather fuller in textual treatment and very much more elaborately illustrated. Each species of bird found in California will be portrayed in an extended popular vein, and each subspecies will receive separate technical treatment. The text itself will be entirely the work of Mr. Dawson, but it will incorporate not only his own experience of five or six years in California, but the essentials of all available knowledge as published in "THE CONDOR" and elsewhere, and as embodied in abundant notes contributed by members of the Cooper Club. The work is thus seriously undertaken, as advertised, "under the auspices of the Cooper Ornithological Club," and Mr. Joseph Grinnell has promised to vise the manuscript.

Especial pains is to be taken with the illustration of "The Birds of California"; in fact, it is to be for its size the most elaborately-illustrated work on birds ever undertaken, as well as the most sumptuous ever produced in America. As a basis of this expectation, we have the uninterrupted work of the author and his assistants with the cameras for five seasons in California (Photographs of twenty-five species of the *Limicolae* have already been secured). Messrs. Bohlman and Finley of Portland have promised to supply needed material from their matchless collections, and a host of amateurs are already at work to the same end. Finally, and best of all, Mr. Allan Brooks, who is now in California, is devoting practically his entire time for five years to the production of the colored plates for "The Birds of California." In this as in other regards our realization is exceeding our original promises. We began by promising only 48 plates, whereas we already have over 100, and hope to have 200 or even 300—all without additional cost to our original subscribers.

## THE EDITIONS

*Patrons' Edition, De Grand Luxe*, complete in four sumptuous volumes and limited to one hundred copies. A hand-made edition of extreme luxury, illustrated throughout with original photographs, half-tone proofs pasted in, bromide enlargements, etc., and containing six original water-color studies by Allan Brooks. This edition will employ a large format, 11½ by 15 inches, facilitating the use of hand-set type and the display of over 1000 illustrations. The binding will be of the best known to the art, and will be done (tariff conditions permitting) in London under personal direction of Mr. Dawson. The set will weigh fifty pounds. The price is \$1000. Seventeen sets already subscribed, as follows:

William H. Crocker  
Charles Templeton Crocker  
William B. Bourn  
Mrs. J. Hobart Moore  
Mrs. Esther L. Hammond  
John Lewis Childs

Miss Mary E. Foy  
Mrs. Margaret B. Fowler  
Mrs. R. R. Blacker  
William F. Herrin  
John Martin  
Miss E. B. Scripps

E. J. deSabra, Jr.  
A. B. Spreckles  
Joel Remington Fithian  
Mrs. Robert J. Burdette  
Mrs. Katharine T. Russell

*Stockholders' Edition, De Luxe*, complete in three volumes, 9½ by 12½ inches in size, and limited to 250 copies. This edition will represent the supreme of mechanical processes in book-making and illustration, and will be bound in full French Levant leather inlaid by hand with special bird designs in color. The three volumes will comprise over 1500 pages of text with 750 half-tones, besides 24 full-page photogravures, at least 100 process reproductions of water-color paintings by Mr. Allan Brooks, and 63 full-page photographs. Net weight about 36 pounds. Price \$150 (but see special offer beyond). This edition is especially recommended to members of the C. O. C. One hundred and twelve copies are

sold, and the following members of the Cooper Ornithological Club are among the present subscribers:

A. B. Howell  
John W. Mailliard  
Annie M. Alexander  
F. E. Newbury  
W. Lee Chambers  
Virgil W. Owen  
Frank C. Willard  
O. W. Howard  
Harry J. Lelande

Mrs. William R. Myers  
A. M. Ingersoll  
J. Eugene Law  
Antonin Jay  
Donald R. Dickey  
N. K. Carpenter  
Elizabeth Day Palmer  
Howard W. Wright  
C. B. Linton

Charles Irvin Clay  
David Starr Jordan  
John Rowley  
Howard Robertson  
G. Frean Morcom  
W. B. Judson  
Jas. H. Gaut

*Sunset Edition De Luxe*, limited to 250 copies. Exactly like the preceding except that it is in three-quarter binding, and has only 30 full-page photographs. This is a worthy and durable form and will become our leader as soon as the subscription list to the Stockholders' Edition is completed. The price is \$110. Subscription list is now open. Only four sold.

*Large Paper Edition De Luxe*, limited to 250 copies. Of the same general proportions as the two foregoing, and conserving their essential art values at a minimum of cost. Paper and press-work exactly as before, but binding of the simplest sort, gray boards and paper label, and the full-page photographs sacrificed. Will contain the entire series of color-plates, however extended. Purchasers who regard this valuable feature should not fail to secure at least this edition. Net weight about 32 pounds. Price \$67.50. Among the early subscribers are the following Cooper Club members.

H. W. Carriger  
R. H. Bennett  
J. R. Pendleton

Adriaan Van Rossem  
Maunsell S. Crosby  
E. S. Spaulding

H. S. Gane  
William Frederic Bade  
W. B. Mershon

*Booklovers' Edition*, limited to 500 copies. Involves a change of format and substantial reduction in bulk, being printed on thinner paper 7¾ by 10 3-8 inches in size, and necessitating the sacrifice of the larger color-plates and photogravures,—48 of the former and 12 of the latter retained. Handsomely bound in ¾ Levant leather, and very satisfactory for those who dislike heavy volumes. The set of three volumes will weigh about 19 pounds. Price \$45. Cooper Club subscribers:

J. Grinnell  
H. S. Swarth  
W. P. Taylor  
Albert E. Colburn

Frank S. Daggett  
W. K. Fisher  
G. Willeit

H. C. Tracy  
Charles A. Kofoid  
Harold C. Bryant

*Students' Edition*, in three volumes. A proposed popular edition of ordinary quality wherein only the value of the text is to be regarded. Prices will run from \$20 in cloth to \$30 in full leather. Subscription list not yet opened. Fuller announcement later.

## CHARACTER AND CLAIMS

For those not already acquainted with Mr. Dawson's work we submit a few extracts from reviews and letters which appear to justify our high expectations of this final effort. Of "The Birds of Ohio" (1903).

"The most attractive and valuable work on the birds of a single State which has yet appeared."  
—Frank M. Chapman

Of "The Birds of Washington" (Two volumes, 1909).

"The work as a whole and in detail is a model of its kind".

—Robert Ridgway

"A handsome work creditable alike to the author and his various collaborators, to the publishers, and to the State whose birds are here so effectively depicted".

—J. A. Allen in *The Auk*

"It is certainly a magnificent work".

—William L. Finley

"Exceedingly interesting".

—John Lewis Childs

"There is not a 'dry' page in the book".

—A. W. Anthony

"A magnificent piece of bookmaking".

—Dr. T. S. Palmer

"The most attractive and delightful of them all".

—Rev. P. B. Peabody

"The book is wonderful".

—Col. John E. Thayer

"The work is an ideal of artistic taste and elegant bookmaking".

—Joseph Grinnell in *The Condor*

"I am delighted with them".

—Theodore Roosevelt

# CALIF

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Well, anyhow, we believe that a work on "The Birds of California" ought to be supremely beautiful and very satisfying. We are going to do our best, and we want your interest, *your help, YOUR ENTHUSIASM, NOW!*

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# ORNIA

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In like manner, a set of the Sunset Edition De Luxe (regular pay-on-delivery price \$110), may be engaged upon advance payment of \$80, of which \$20 down and \$20 January 1st each year till paid in full. You will receive a certificate for a three-quarter share of stock in The Birds of California Publishing Company, and a guarantee of the set of books as a dividend.

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# THE CONDOR

A Magazine of Western  
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Volume XV

May-June, 1913

Number 3



COOPER ORNITHOLOGICAL CLUB



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# THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XV

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## A STUDY OF THE NESTING OF THE MARSH HAWK

By ARETAS A. SAUNDERS

WITH SIX PHOTOS BY THE AUTHOR

IN THE prairie portion of Teton County, Montana, the Marsh Hawk (*Circus hudsonius*) is the most abundant of all the hawks. During the nesting season of 1912 I was fortunate in finding a nest of this species so close to town (Chouteau, Montana) that I could make observations upon it almost daily. In the near vicinity of this nest was one of the Short-eared Owl, an owl that is almost equally abundant with the Marsh Hawk in this region. My observations on the nesting of the Short-eared Owl are elsewhere recorded in the pages of THE CONDOR (this issue, page 121). The nesting habits of the two species are in general quite similar, each being the only North American species of its family that nests on the ground. In comparing the two species, however, I found that while the general nesting habits are much alike, in many of the details they are quite dissimilar.

The Marsh Hawk arrives in this region usually some time in the month of April, adult males usually being seen a week or two in advance of the females. Courtship evidently begins as soon as the females arrive, and may be witnessed frequently during the latter part of April and early May. I have usually observed it along the borders of a stream, where a group of cottonwood trees flank a broad open meadow. The female sits in one of the cottonwood trees and watches the performance of her mate. He flies back and forth across the meadow at a height varying from about fifteen to fifty feet above the ground. He first flies upward with much flapping of his wings till he reaches the fifty-foot height, then turns in the air with a curious motion that displays first the white rump and then the white of the wing-linings and underparts, and flaps down again to the fifteen-foot level. Then he turns and rises again, and continues thus, up and down,

across the meadow, for some time. As he rises upward he calls four or five short squeaky-sounding notes, "eh—eh—eh—eh—eh", but when he flaps downward again, he is silent. The female usually sits silently watching the performance, but occasionally calls to him with a loud scream. If he flies too far away, she sometimes leaves her perch and sails silently after him to a point where she can get a nearer view of his performance.

Nesting in this region evidently begins in the latter part of May. I first observed the pair, whose nest is the subject of this study, in the vicinity of where they nested on May 22. The nest was not found until May 27, when it contained but a single egg, evidently just laid. The nest was merely a hollow in the ground lined with a few grasses, and located under a thick clump of cinquefoil bushes. Another nest of this species was found May 26 with a single egg, so that this is probably about the average time when nesting of this species begins in this region. This other nest was built of small sticks, lined with grasses, and placed in the midst of a cattail marsh.

Eggs are not laid daily, but evidently at irregular intervals averaging about once in two days. The first nest, found May 27, had still but one egg on the evening of May 28. I was away from the vicinity from that date until June 6, but on my return found five eggs in the nest, and on a second visit that evening, six eggs. The sixth egg completed the set.

During the period from June 6 to 30 the female incubated almost constantly; in fact I never went to the nest when she was not there. The male bird did not incubate at all, to my knowledge, as the male of this species is sometimes said to do. He was usually in the vicinity of the nest, but sometimes away hunt-



Fig. 26. NEST AND INCOMPLETE SET OF EGGS OF THE MARSH HAWK; PHOTO TAKEN JUNE 6, 1912, NEAR CHOUTEAU, MONTANA

ing. Both birds were always much disturbed at my presence, but the male was much the more aggressive. This was also true of the birds at the second nest mentioned above. The male usually saw me when I was a considerable distance from the nest, and flew toward me, circling about my head, and calling "eh—eh—eh—eh—eh", at short intervals. As I got nearer the nest he grew bolder, and often swooped at my head. He never actually struck me in these swoops, but often came within two or three feet, and I believe he might have struck me with his feet, had I not frequently waved my hat or camera tripod at him, which had the effect of somewhat decreasing the ardor of his attacks. In his attacks he usually circled till fairly close to me, then with a sudden, savage twist in his flight, lowered his feet as though to strike me with them, and swooped directly at my head. The female did not rise from the nest until I was ten or fifteen feet away,

then she rose and circled about my head, calling in the same manner as the male. At first she never swooped at my head, but later, particularly after the young had



Fig. 27. YOUNG MARSH HAWKS AGED TWO AND THREE DAYS; ONE OF THE TWO EGGS WAS ON THE POINT OF HATCHING; PHOTO TAKEN JULY 4

were three Kingbird's nests, and the owners of these nests did their best to make his life miserable every time his attacks on me led him too close to their homes.

During the period of incubation the male evidently fed his mate. At least he was out on hunting trips part of the time, and once, when he was away at my arrival, he returned while I was setting up my camera for a photograph, carrying a mouse in his claws. As soon as he saw me, he dropped the mouse and flew swiftly up to attack me. Later I picked up the mouse and examined it. Its head had been removed and there was a large hole evidently made by the hawk's claw in its side. After the young hatched the male evidently spent much of his time hunting, for I saw very little of him around the nest. In fact I did not see him at all after July 4. It is quite possible that he was shot about this time, for it seemed strange that I should see nothing at all of him after that. He was a particularly handsome bird. His plumage was perfect and his flight was always

swift, graceful and beautiful. His larger mate, in comparison, always seemed clumsy. There were ragged holes in her wings and one tail feather hung loose, showing that she had evidently recently encountered a charge of shot.

hatched, she did so, but never in quite the same swift, savage, and unhesitating manner as her mate.

During the latter part of June it seemed as though the male had learned to distinguish me from other people as the particular disturber of his home, for he attacked me frequently when I was a long distance from his nest, and often not headed in that direction. Once I was surprised to have him swoop suddenly and silently at my head while I was hunting for a curlew's nest, more than a mile from his own. The male curlew soon spied him, however, and drove him quickly away. On three different sides of his nest, all within a hundred yards of it,



Fig. 28. YOUNG MARSH HAWKS AGED 12 AND 13 DAYS; PHOTO TAKEN JULY 14

On the evening of June 30, I stopped to look at the nest and found three of the eggs pipped and about to hatch. On the morning of July 1, I found that the three young had emerged. They were well covered with down above, but rather sparsely so below. The down on the upperparts was almost white, but with a slight buffy cast, while that of the underparts was pure white. The skin was light pink and, showing through the down, gave the young birds a pinkish appearance. The eyes of one of the birds were closed, but those of the other two, just beginning to open. This, with similar observations made on the birds born later, showed that young Marsh Hawks are evidently born with the eyes closed, but that they open within a few hours. This is a contrast to the young Short-eared Owls, whose eyes did not begin to open until they were six or seven days old.

The fourth young Marsh Hawk hatched before the morning of July 2, the



Fig. 29. YOUNG MARSH HAWKS AGED 23 DAYS; PHOTO TAKEN JULY 24

fifth on the afternoon of July 4, and the sixth on July 7. In the case of the sixth bird the exact date of laying of the egg and hatching was known, and the period of incubation was 31 days. Since the first three eggs hatched at about the same time, it is probable that incubation did not begin until after the third egg was laid. On July 4 I took the first photograph of the young, then two and three days old, at a time when the fifth egg was pipped and about to hatch.

For the first six or seven days the young showed no change in appearance except that they grew larger and became somewhat more active. On July 8, just after the youngest bird had hatched, I noted that the oldest birds were about three times the size of the youngest. About July 10 the two youngest birds disappeared, probably having died. I believed that this was because they were so much smaller and weaker than the four older birds that they were unable to get their proper share of food.

Sheathed feathers began to appear in the oldest birds at the tips of the wings on July 8, when they were seven days old. On July 14, when twelve and thirteen



Fig. 30. THE LAST YOUNG HAWK TO LEAVE THE NEST, AGED 33 DAYS; PHOTO TAKEN AUGUST 4

days old, the birds began to show fear and crawled back into the cinquefoil bushes when I approached. When I attempted to handle them, they sat up and threatened me with their beaks, and called in a high, squeaky, baby voice. On July 17 the feathers at the tips of the wings began to break the sheaths, and sheathed feathers were appearing thickly on back, shoulders, breast and tail. At this time the feet and cere were beginning to turn from a light pinkish color to yellow. On July 22 the feathers were breaking the sheaths in many places, those at the tips of the wings being broken for about two inches of their length. The feet and cere were now bright yellow. The birds stood

with outstretched wings and open beak, turning to face me no matter to which side of the nest I went. They were in about the same condition on July 24, so that I found it almost impossible to handle them. When I attempted a photograph of them they crawled off into the bushes, so that I could only get two at a time in the picture.

During the week following this the birds changed rapidly. Feathers unsheathed all over them, and much of the white down came off. On August 4, when the birds were thirty-three and thirty-four days old, I approached the nest and found three of them able to fly a little. One rose at my approach and flapped away for about 150 feet before it sank in the grass. When I first saw it rise, I thought it the mother bird until I had had time to note the fresh plumage and absence of holes in the wings. Two others rose after this one and flew a short distance. I caught one of these, and took my last photographs of it and of the bird that had remained in the nest. This was my last visit to the nest and my last sight of the birds, as I left on a trip into the mountains the next day.



Fig. 31. YOUNG MARSH HAWK AGED 34 DAYS; PHOTO TAKEN AUGUST 4, 1912, NEAR CHOUTEAU, MONTANA

The food of these hawks was largely mice and other small rodents, but not entirely so. I sometimes found Meadowlark feathers around the nest, and once the wing, foot and breast-bone of a young Sharp-tailed Grouse. I often found well-picked bones of various small animals in the nest, and believe that the young usually picked the meat from the bones rather than swallow the animals whole, as the young Short-eared Owls did. They also apparently did not swallow fur, feathers and bones so frequently as the owls did. I found a few ejected pellets around the nest when the young were pretty well grown, but they were much smaller than those about the owls' nest, and there were very few of them.

## THE WILD TURKEYS OF COLORADO

By WELLS W. COOKE

WITH MAP

THE turkey was first formally included in the list of Colorado birds by Ridgway in 1873 (*Bull. Essex Inst.*, p. 179) under the name of *Melcagris gallopavo* which at that time meant a turkey similar to the Kansas bird. To this was added by Morrison (*Orn. & Ool.*, 1888, p. 70) *Melcagris gallopavo mexicana*, from La Plata County, to represent the form of turkey found in southwestern Colorado. These two forms remained unquestioned in the Colorado list until 1900 when the Rocky Mountain turkey was separated by Nelson as *merriami* (*Auk*, 1900, p. 120). An examination showed that every specimen of a turkey in all the Colorado collections belonged to the new form, even one taken near Canyon City, where the eastern bird had been supposed to occur.

In referring to this matter in THE CONDOR for July, 1912, I said: "The only claim the form (i. e., the eastern turkey) has, rests on the assumption that the birds of southeastern Colorado (where the species was very common a hundred years ago) must have been the same as the birds a little to the eastward in Kansas and Oklahoma. As the species is now supposed to be extinct in that part of Colorado, it is probable that the matter never can be settled."

During the last few days I have had occasion to go over the whole matter again and have become convinced that the assumption of a continuous range of turkeys from Kansas and Oklahoma to Colorado is erroneous. Lieut. Pike in 1806 found turkeys enormously abundant along the Arkansas from the foothills to the site of the present town of Pueblo. In 1820 Maj. Long finds them common at the junction of the Las Animas and Arkansas rivers. There his party divided, and Say's division which followed down the Arkansas does not report seeing turkeys until they had passed far into Kansas to about where Wichita is now. Maj. Long's party went south into New Mexico and crossed the north-eastern part of that State to the valley of the Canadian River; he does not record turkeys until after he reached the Canadian River in Texas some twenty miles west of the present town of Tascosa, that is, he saw no turkeys during the whole time he was in New Mexico. As his party was living on stale horse meat, and had hunters out all the time, it is safe to assume that they would have found turkeys had there been any present.

In 1846 Lieut. Abert spent a summer in this same region. He speaks of the

abundance of turkeys in eastern Kansas, and mentions meeting them west to the Little Arkansas River near the present town of Wichita; then he does not record them again until he reaches Bent's Fort, Colorado, near the present town of Las Animas, though he notes from day to day the more interesting birds seen. The previous year, 1845, he made an expedition into New Mexico, starting from this same Bent's Fort, and records turkeys all the way from the Arkansas up the Las Animas to Raton Pass. Thence he passed to the headwaters of the Canadian River and down this stream to its mouth in Oklahoma. He does not mention seeing turkeys in all the country from the east side of Raton Pass for the next hundred miles until he is far out on the plains and almost to the New Mexico-Texas line.

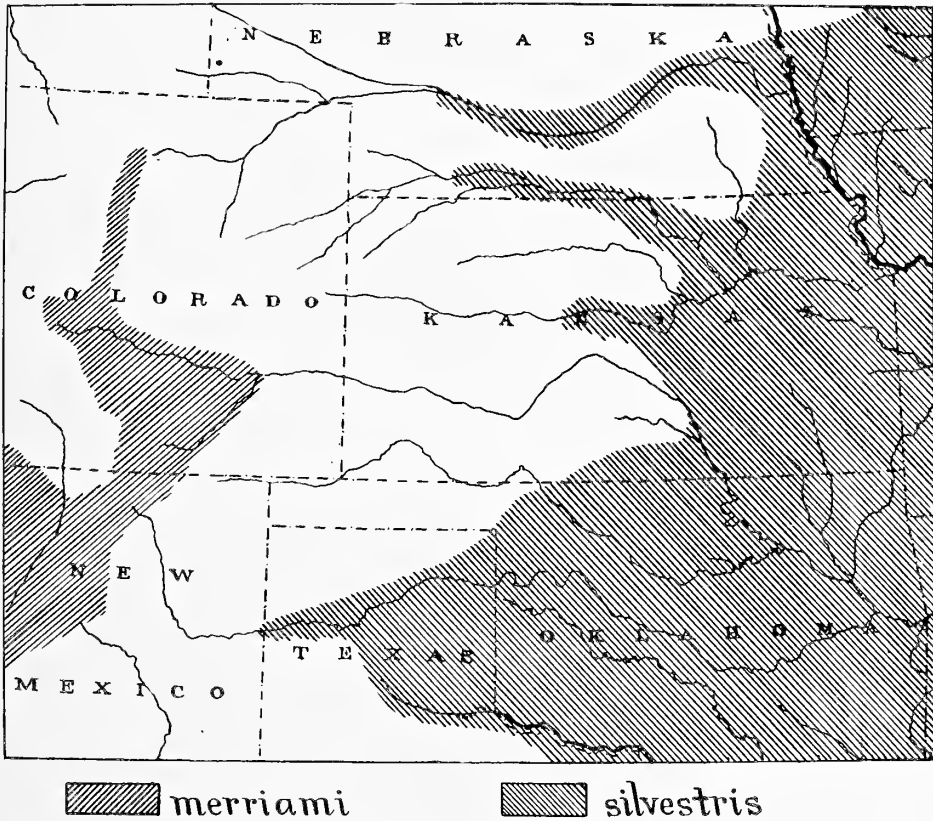


Fig. 32. A PART OF THE RANGES OF THE WILD TURKEY (*Meleagris gallopavo silvestris*) AND THE MERRIAM TURKEY (*Meleagris gallopavo merriami*)

It thus seems that Long, Say, and Abert each found a wide space separating the turkeys of Kansas and Texas from those of Colorado and New Mexico. Nor has any subsequent traveler reported the presence of the birds in this intervening space. The turkeys of Kansas and of northwestern Texas are *silvestris* and those of the upper Arkansas in Colorado and of the region around Raton Pass are *merriami*. It seems then logical to suppose that *merriami* ranged down the Arkansas and Las Animas rivers to their junction and that the turkeys of Bent's Fort and vicinity belonged to this form. If the above reasoning is correct the eastern form of the wild turkey has never occurred in Colorado and must be omitted from the Colorado bird-list.

## THE ROCKY MOUNTAIN PINE GROSBEAK IN UTAH

By EDWARD and A. O. TREGANZA

WITH THREE PHOTOS BY THE AUTHORS

THE following may be of interest, as it is germane to Mr. Milton S. Ray's article on the California Pine Grosbeak in *THE CONDOR* of September issue, 1912.

July and August of 1907 brought us our first knowledge of the Rocky Mountain Pine Grosbeak (*Pinicola enucleator montana*), while we were camping in the Wasatch Mountains at an altitude of 8500 feet. It was our first trip to the higher mountains in search of any material other than the Nutcracker, whose trail we had followed in previous years during early March and April. Hence we were hardly prepared for the abundance of bird life that met us at every turn. We were in a maze of all things new. So the season passed with a goodly number of identifications and a working knowledge of the country from the pussy-willow marshes of 7500 feet to the barren, rocky peaks of the 11,000-foot divide that drops away to the Rockies. While but little was definitely learned this year concerning the habits or the whereabouts of the nesting of *P. e. montana*, each year since, up to and including 1912, we have followed, watched, and noted, with that increasing, tantalizing interest, yet ever hopeful for a more intimate knowledge, this vagrant who crosses our path unawares, always with that seeming disregard of our presence, flaunting in the bright sunshine a sheen of brilliantly illumined crimson or gold, as the color phase may be, only to be lost in the deepening shadows of the conifers.

Many times after a grueling half day, we have wearily dropped to a fallen tree to commiserate on our fruitless search of the morning, meanwhile satisfying the inner man with a whole-wheat slug and its accompanying handful of nut-meats and raisins; when from out of the somewhere, but to us nowhere, we see a shimmer, as it were, of sunshine dropped through the foliage, and there on a nearby conifer is our bird preening; and while we watch this gorgeous display of red and gold, the female in sombre grays and browns, coming unheralded, alights with lowered, quivering body and fluttering outstretched wings expectant of her mate's wooing—a moment or two of lovers' greetings, and they are off over the stony point of the mountain—to their nest?

Almost identical in general observations are our field notes on *P. e. montana*, with Mr. Ray's findings concerning *P. e. californica*, regarding time of breeding, situation of nest, actions and mannerisms of the birds, etc. We, therefore, omit our general field notes of the past years and confine ourselves to a description of one of the three pairs carefully noted and observed this year, thinking to possibly add some little information regarding nest building and mating.

From the field notes of Edward Treganza: *June 21, 1912.*—Today I went up American Fork Creek following an old roadway which led me to a deserted miner's camp, and mine named Iowa Copper, where I found much snow and little signs of new spring growth. Chickadees, Williamson Sapsuckers, Tree Swallows, and Cassin Purple Finches were much in evidence. As I came up to the empty cabin, a House Wren flew out. I entered, to find her home in a small cupboard back of a whisky bottle, but no eggs. While sitting on a box in the doorway to rest, and watch the wren a few minutes, my eye was attracted to a much larger bird which alighted on the roof of the stable, some distance away; resting

there but a moment it dropped to a bare spot nearby, flew back up to the stable roof, then away to some large aspens, carrying in its bill a small twig. That this bird was a female Pine Grosbeak I felt sure, although the distance was too great to be positive. Not allowing my eyes to wander from her, I reached for my binoculars as she hopped from branch to branch with that careless unconcern, in which art these birds are quite proficient. Presently she flew up the mountain side to a large, lone fir standing in a body of small aspens, and I raised my glasses just in time to see that she had alighted within a foot or so of what seemed to be an already well-formed nest. After placing her material, she returned to the stable, then dropped to the bare spot in search of more nest material, as before, continuing to and from her nest in this manner for more than an hour. Then to make myself doubly certain, I made my way up the mountain, and upon climbing the tree, found a nest whose lining was partially completed. The nest was situated in a rather heavy clump of boughs, fourteen feet out on a horizontal branch, and some twenty-five feet from the ground. The female was not at the nest at the time I commenced to climb the tree, but presently returned, alighting within two feet of me, to immediately fly away again, and was seen no more this day.

*June 24.*—Iowa Copper Mine.—Today while watching a pair of Gray-headed Juncos nest-building, some two hundred yards below the cabin where on June 21 I found the female Grosbeak gathering nest material, I heard, calling at regular intervals, a male Grosbeak; but no bird had yet been seen, although I had looked carefully. Suddenly I realized that something had crossed my vision, and

my eyes instantly rested on a female Grosbeak sitting on a branch of a dead aspen. Apparently it was their trysting place, for almost at the same moment, the male appeared from somewhere alighting on the same branch some eight feet from the female who squatted with outspread wings and tail, in much the manner of young but fledged birds when being fed by their parents. Both birds commenced and kept up a continual twitter, the male strutting to and fro on the branch, each time drawing a little nearer to the female, and the while making obeisance, bowing the head as low as the feet, and displaying his colors with much grace, until they finally met. The female had not moved since alighting, other than the continued trembling of spread tail and fluttering wings. The male then rubbed his head and neck against the head and neck of the female, several times up and down, then suddenly with open beak she raised her head, the male seizing her by the beak, the two commenced tugging and pulling at each other. The stroking of necks and tugging of open bill of female was gone through with three times,

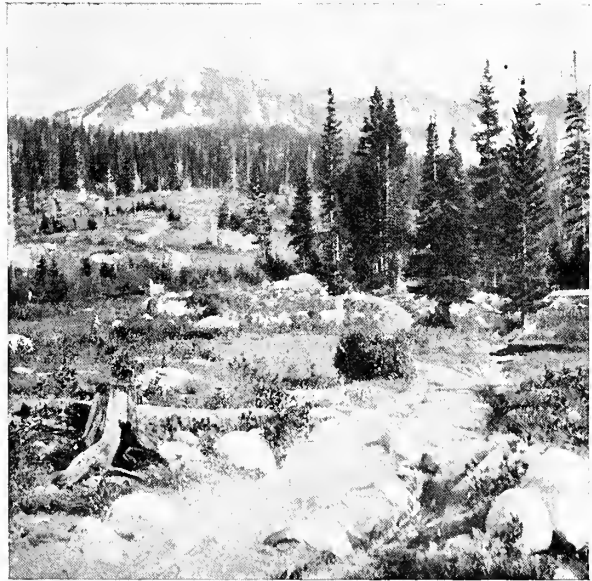


Fig. 33. HABITAT OF THE ROCKY MOUNTAIN PINE GROSBEAK, IN THE WASATCH MOUNTAINS, UTAH

always with much chattering; then coition; then with continued actions of endearment the male worked himself back to his original position on the limb, some six or more feet away, only to recommence his advances. Three times these actions were performed, then without warning both birds assumed a normal attitude and went as they had come, in opposite directions, the male into the dense conifers about two rods away, disappearing completely, while the female flew high over the tops of the trees fully an eighth of a mile and down to a lower altitude. Neither bird was seen again this day although diligently searched for; nor was there anything in their actions that would indicate that they had a nest



Fig. 34. LOOKING TOWARD THE 11,000 FOOT  
DIVIDE, WASATCH MOUNTAINS, UTAH; HOME  
OF THE ROCKY MOUNTAIN PINE GROSBEAK

in the immediate vicinity, as neither bird apparently came from, or went in, its direction. This is the first time I have seen the male of this pair.

*June 26.*—Iowa Copper Mine.—Today I visited the pair of Grosbeaks, witnessing the same nuptial ceremonies of two days previous, at the conclusion of which both birds departed as before. I then proceeded to the nest, and upon investigation found it completed but as yet no eggs.

*June 28.*—Iowa Copper Mine.—I found my pair of Grosbeaks still continuing their conjugal relations, and nest still empty.

*July 3.*—Today I took two boys with me to the cabin of the Iowa Copper, quite sure that by this time a full complement of eggs awaited me, and upon reaching the tree the female could be seen sitting upon the nest. After climbing the tree I was compelled to give the branch on which the nest rested several sharp raps at close range before she flushed; then only did she fly to a neighboring limb, to immediately return to the end of the nest-branch. By leaning far out the nest was seen to contain three eggs. Several attempts to reach them proving futile, another course was decided upon. So returning to the ground I went in search of a dead aspen of sufficient length and strength to take me up to the nest independent of the branch on which it was placed. While in search of such timber I located, in a bunch of young firs, nests of Cassin Purple Finch and Audubon Warbler in course of construction, and Western Robin with four fresh eggs. Snow was here six feet deep. The Y-topped aspen selected proved to be five feet short, but fortunately the crotched top just fitted a crotch in the limb underneath that on which the nest was located. This formed the main support for the cradled platform, made of sawed off branches laid crosswise, and resting on limbs on either side of the supported branch; and a young aspen leaning toward the platform, proved an additional support, for with my weight it bent over sufficiently to allow me to lash the whole mass together, making it quite rigid. During all this time the bird had remained on the nest with apparent unconcern, nor did she move until my hand was within a few inches of her, and then only to a position within two feet of the nest, there to hover with drooping and quivering wings. Then away to a neighboring fir with a call, to meet her mate. Both birds then returned to the tree, the male to immediately depart to another nearby tree, there to be heard but not seen. The female on a branch two feet above the nest, took a position from which she did not move, until I had collected both nest and eggs, then flying to the ground some seventy-five feet away she apparently commenced feeding; but very shortly she took wing across the little creek and around the mountain, to be seen no more that day.

*General Remarks.*—The total number of nests of this species actually seen and examined, is nine, and covers a period of six years, although several additional pairs of birds have been noted and watched during the breeding season, whose nests could not be located. The nests in all cases have been plainly visible from the ground, as they are not especially small, placed at no great elevation, and with no apparent attempt on the part of the birds at their concealment. The locating of a pair of these birds does not always, however, mean the easy finding of their nest; for they have a very wide range, the male radiating from a quarter to a half mile in all directions. Our trips in quest of these birds have not been of two or three days duration; but of from two to six weeks, and all the ground covered has been carefully worked, so we therefore know that the number of pairs are few and limited in range, being spread over a considerable territory.

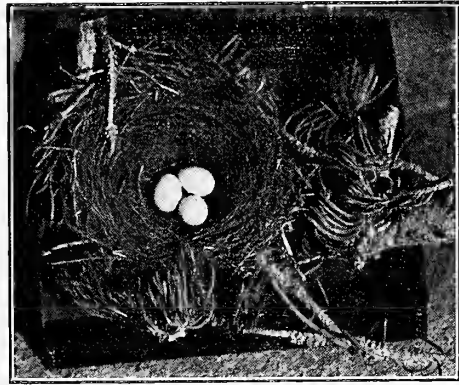


Fig. 35. NEST AND EGGS OF THE ROCKY MOUNTAIN PINE GROSBEAK; THE MARKINGS ON THE EGGS CONSIST OF FINE BROWN DOTS GENERALLY DISTRIBUTED OVER THE ENTIRE SURFACE, AND ACCUMULATED MOST DENSELY ABOUT THE LARGER ENDS

The nests, with one exception, have been placed on horizontal limbs of a distance of from five to fifteen feet out from the trunk of the tree, and from seven to thirty feet high. On July 15, 1907, a nest containing young just hatched was found placed about seven feet up, and in, next to the body of a small, gnarly, dead spruce, with the stub of a limb and a few small twigs the only support. In all cases the nests have been composed of the same materials, and alike in structure. From a hasty glance they seem light and flimsy; but as a matter of fact, they are quite compact. The small under platform does not exceed much in size the nest proper, or heavy lining, and is built of the small dead twigs of the mountain maple, willow, or pine, according to location. On top of this is placed coarse weeds and straws, into which is worked a fine, wire-like weed, of the previous year's growth, until finally the lining proper consists of this weed altogether. It is quite remarkable how dense and well conformed this stiff and brittle wire-like weed becomes. Of course at the time the nest material is gathered it is still damp, and flexible; for it is secured from the few spots here and there that are bared of the snow on the sunny exposures. Invariably the nesting site chosen is in a lone tree on the edge of the timber, on or near the point of a mountain always having a good outlook.

The earliest date of the finding of a completed nest is May 25, the latest July 1. The laying of eggs is commenced from two to ten days from the time when the nest is completed. Three seems to be the common complement; in one instance, only, was a nest found containing four young. The earliest date of the finding of young in the nest is July 12, then about three days old. The latest date is August 20, with young ready to fly. Upon inquiry at several of the mines which continue work throughout the entire winter, we are told that this Grosbeak is a constant resident. The elevation of these mines varies from 7,000 to 8,500 feet.

## NOTES ON SOME MESA COUNTY, COLORADO, BIRDS

By EDWARD R. WARREN

THE LAST of April and first half of May, 1912, I spent in western Mesa County, Colorado, collecting. Some birds not before recorded from the County were collected, and some observations made on other species are herewith recorded. The only list we have of Mesa County birds is Rockwell's "Annotated List of the Birds of Mesa County, Colorado," in *THE CONDOR*, July, 1908. The first portion of my time was spent at Mack, ten miles east of the Utah line, and the latter part at the Sieber Ranch, on Little Dolores Creek, twenty miles westward from Grand Junction.

***Tyrannus verticalis*.** Arkansas Kingbird. First seen near Mack, April 26, and others the first week in May. Also seen at Sieber Ranch May 12, and common in the town at Grand Junction, May 15-16.

***Tyrannus vociferans*.** Cassin Kingbird. Common at Sieber Ranch May 10-14, decidedly outnumbering the preceding species at this place. I have mentioned these two species, as my friend Rockwell seemed a little in doubt about their relative abundance and distribution, and any additional records will help clear the matter up.

***Empidonax griseus*.** Gray Flycatcher. Two were collected near Mack, April 24 and 26, and one at the Sieber Ranch, May 10, the first record for the County.

The skins were identified by Mr. H. C. Oberholser of the Biological Survey, to whom acknowledgments are due for this and other identifications mentioned beyond.

**Agelaius phoeniceus neutralis.** San Diego Redwing. A small series of redwings collected at Mack were identified by Oberholser as *neutralis*, making the first record for Mesa County.

**Zonotrichia leucophrys leucophrys.** White-crowned Sparrow. Made its first appearance at Mack sometime between April 29 and May 6. I was away from there, out of the County, between those dates. It was common May 6.

**Zonotrichia leucophrys gambeli.** Gambel Sparrow. This bird was common at Mack April 21, and remained so until the 29th. It no doubt left soon after that date for I saw none on my return May 6, when its place had been taken by the typical form.

**Spizella breweri.** Brewer Sparrow. One collected and others seen, May 6, near the Grand River, three miles west of Mack. First record for County.

**Junco oreganus shufeldti.** Shufeldt Junco. One collected near Mack, May 6, and identified by Oberholser. First record for County.

**Junco hyemalis mearnsi.** Pink-sided Junco. This species was seen and collected at Mack, April 26 and 27, and at the Sieber Ranch, May 12-15. The five specimens collected were all females, the males probably having left for their summer homes some time previously. Rockwell gives this species merely a passing mention, without locality, so I have thought it best to make this definite record.

**Amphispiza bilineata deserticola.** Desert Sparrow. Seen and collected near Mack, April 23-27, the first record for Mesa County. The birds frequented a mesa with scattering cedars and pinons on it about two and one-half miles west of Mack, apparently preferring the low brush about the edges of the gulches and at the foot of the mesa.

**Lanivireo solitarius plumbeus.** Plumbeous Vireo. Taken on Little Dolores Creek, near the Sieber Ranch, May 12. The first record for the County.

**Vermivora celata.** Orange-crowned Warbler. Taken at the Sieber Ranch May 12, the first record for the County. The specimen was identified by Oberholser as belonging to his subspecies *orestera*, which, however, has not yet been accepted by the A. O. U. Committee.

**Dendroica nigrescens.** Black-throated Gray Warbler. One collected at the Sieber Ranch May 10, and my notes say it was very common there May 14. Rockwell gives but one record of it, at Grand Junction.

**Poliophtila caerulea obscura.** Western Gnatcatcher. Collected at the Sieber Ranch May 10-14. Several were seen. This is another of the birds of which Rockwell gives but one record.

## SOME FURTHER NOTES FROM THE TAHOE REGION

By MILTON S. RAY

WITH TWO PHOTOS BY OLUF J. HEINEMANN

THE FIRST three weeks of June, 1909, were spent in field work at various elevations around the southern end of Lake Tahoe. From our varied experiences, however, I have only culled those notes which are most likely to be of interest.

On June 1, scores of nests of the Black Tern (*Hydrochelidon nigra surinamensis*) were noted in the marsh at Al-Tahoe everyone of which was in the course of construction or just completed. On June 2 about three miles southeast of Bijou, I noted the Parkman Wren (*Troglodytes aedon parkmani*) for the



Fig. 36. NEST AND EGGS OF THE SORA RAIL, PHOTOGRAPHED JUNE 10, 1909, NEAR LAKE TAHOE

first time in the region. Its occurrence here at this date would indicate its nesting in this locality as very probable. On June 4 among the tall marsh grass of a boggy tract on the Bijou meadow, I found a nest of the Sora Rail (*Porzana carolina*) the first I believe to be recorded for Lake Valley. The nest held the un-

usually small complement of four eggs. Strange to say, two of these were infertile and two were pipped.

The day following, a nest of the Tree Swallow (*Iridoprocne bicolor*) was noted, with seven fresh eggs. It was built in a cavity in a pile of a wharf along the lake shore above deep water, a favorite nesting site here for this species. In this locality seven eggs is the usual complement although from all I have been able to learn five is the common number laid in the coast region. From this it might appear that a comparison of the number of eggs laid by the same species in high and low altitudes would be worthy of investigation. In those localities where seasonal conditions do not allow the raising of a second brood it may be found that this is partially compensated for by the increased size of the initial complement.

June 6 was spent at Al-Tahoe marsh where the customary nests of the Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*), and of the Red-winged Blackbird were noted. In previous articles the latter was recorded as *Agelaius phoeniceus neutralis*, which was the label given by the California Academy of Sciences. I have had several of the skins recently examined by Mr. Harry S. Swarth of the Museum of Vertebrate Zoology who writes as follows: "The blackbirds are exactly like specimens that Taylor collected in Humboldt County, Nevada, and which he has rather hesitatingly referred to *Agelaius phoeniceus sonoriensis*. They are certainly not *neutralis* of southern California, which has a much heavier bill."

Besides the nests of the blackbirds I found one in which I was especially interested, that of a Wilson Phalarope (*Steganopus tricolor*). This, a frail affair of grasses, was placed on the ground among thick grass near the edge of a fast flowing slough, and contained a single fresh egg. The photograph was taken on June 19, at which time the nest held four eggs well advanced in incubation. It was necessary to cut away some of the thick grass in front in order to have the nest and eggs show on the plate.

Returning to Bijou by Trout Creek, two nests were found of the Audubon Warbler (*Dendroica auduboni*), which well illustrate the wide variation in Sierran nesting dates. One nest twenty-five feet up, on the extreme end of a limb of a giant lodgepole pine, was newly built, while the other, placed against the trunk of a small lodgepole pine, fifteen feet up, held four young ready to fly.

On June 9, a nest of the Ruby-crowned Kinglet (*Regulus calendula calendula*), first found on May 27, was collected with the small complement of five eggs. The nest, placed but ten feet up in a small lodgepole pine, is a gem of bird architecture. Plant fibers, mosses, plant down and fine bits of bark are daintily woven together and warmly lined with feathers and a few horsehairs. The nest is semi-pendant, broad-brimmed and thick-walled. The eggs are creamy-white, faintly clouded, chiefly around the larger end, with light brown. The female was collected with the set, insuring positive identification.

The Ruby-crowned Kinglet is not uncommon in Lake Valley (elevation 6620 feet), but is more abundant at higher elevations such as Summit, Forni's and Cold Creek Meadows, all of which lie between 7000 and 7500 feet altitude. To find a nest of these melodious inidgets, however, is by no means easy, for their diminutive homes, tucked away among thick foliage, are difficult to spy, and sitting birds are rarely flushed. The Kinglet frequents the vicinity of streams and meadowlands, and the song is one of the most beautiful of all to be heard in the Sierran woodland. Beginning with a quick and melodious succession of "chill, chill, chill," it runs faster and faster and ends by carolling out into those

notes of a silvery sweetness "cheterce, cheteree, cheteree." I have heard the winter song of this bird along the coast but it bears little comparison in richness and melody to that heard here in its summer home.

At the Al-Tahoe marsh on June 10 a second nest of the Sora Rail was found, with thirteen eggs in varying stages of incubation. The nest, of dry tules, was



Fig. 37. NEST AND EGGS OF THE WILSON PHALAROPE, PHOTOGRAPHED JUNE 19, 1909, NEAR LAKE TAHOE; THICK GRASS, ORIGINALLY STANDING IN FRONT OF NEST, CUT AWAY TO AFFORD AN UNOBSTRUCTED VIEW

laced to tules above water three feet deep. As with the nest of the Phalarope it was necessary to cut away some of the thick growth to make a successful picture. Besides the nest of the rail two noteworthy ones of the Red-winged Blackbird were found. One held the rather rare complement of five eggs; the other, a set of four, contained two infertile runts, which in every respect but size

were identical with the normal species. The set measures  $1.07 \times .75$ ,  $1.06 \times .75$ ,  $.81 \times .59$ ,  $.75 \times .59$ .

A trip was taken on June 11 to Deerington's, on the summit near Phillips' Station. It was late in the afternoon when I reached the lonely little cabin about which the ground still lay hidden beneath deep snow. On the following day a nest of the Western Robin (*Planesticus migratorius propinquus*) and a nest of the Sierra Junco (*Junco oreganus thurberi*) were found. That of the robin was noteworthy only in that it contained a runt egg. The set of three eggs measures  $1.18 \times .78$ ,  $1.16 \times .81$ ,  $.97 \times .75$ . The nest of the Junco was placed under a little overhanging shelf of earth made by a snow-brook and composed of weed stems and grass and lined with horse and other mammal hair. It held four slightly incubated eggs. So well concealed was it that it would have remained undiscovered had not the sitting bird fluttered off.

The following morning two more nests of the Western Robin were found, one with three fresh eggs, the other with the unusual complement of five, well along in incubation. The nests were placed in pine and fir trees and deep snow lay beneath them. Near the cabin I observed a Western Tanager (*Piranga ludoviciana*) engaged in building a nest forty feet up in a tall lodgepole pine. As the ornithological prospect, owing to the lateness of the season, did not appear favorable, however, I availed myself of an opportunity to ride back to Bijou, which I reached early in the afternoon.

On June 15 along the lake shore near Bijou, a nest of the Spotted Sandpiper (*Actitis macularius*) was found with three eggs well advanced in incubation. The nest was placed among wire grass, and was a slight depression lined with grasses and stems. Mr. Richard Duttkie found another nest of this bird in a like situation during the first week of July, of which he secured a photograph.

Two nests of particular interest, being the first of this species I had found on the floor of the valley, were noted on June 19. These were of the Sierra Hermit Thrush (*Hylocichla guttata sequoiensis*), and both were placed in thickets of lodgepole pine saplings eleven feet up. One held four eggs about to hatch, the other four half grown young. These were the first nests of this bird I have found below 7000 feet altitude. On June 21 preparations were made for the trip to Washoe Lake, Nevada, which has already been described in a previous number of THE CONDOR.

## NOTES FROM BUENA VISTA LAKE AND FORT TEJON

By CHESTER LAMB and A. BRAZIER HOWELL

ON JUNE 6, 1912, we left Los Angeles by automobile for a visit to Buena Vista Lake, situated in Kern County, and for old Fort Tejon, in the Tejon Mountains. Considerable interest is attached to the latter place, because it is the type locality of several of our birds, and because of the extensive work done there by Cooper, Xantus and others.

Shortly after noon on the 7th we arrived at the lake. The intervening time will not be itemized as it was filled in mostly with tire trouble, owing to our having failed to carry proper supplies of the appropriate kind. The lake, some thirty miles southwest of Bakersfield, we finally reached after having been misdirected half a dozen times. On the east side it is flanked by a high levee, and

it was not until we had reached this that we were aware that our journey was over for the time being. It is a shallow artificial lake eight or ten miles long by four wide. In the winter it and the extensive marshes and fields adjacent teem with ducks and geese. Here, as it is all free hunting ground, professional hunters get in their deadly work. They are there to kill, and easily find means to evade the law. One hunter who lives there told us of the great numbers of Western Grebes (*Acchmophorus occidentalis*) that had been taken, and he openly stated that he never missed a chance to take a grebe. During our stay not a single bird of this species was seen.

A short distance from the lake, tules are found growing in the roadside ditches and here occurred many Red-wings—hybrids between *A. p. neutralis* and *A. p. californicus*. There were also countless numbers of Arkansas Kingbirds (*Tyrannus verticalis*), and their nests were to be seen in about every fourth one of an unusual type of telegraph pole. About eight feet up where two boards came together was a shady notch, and here the nests were situated. It was surely extraordinary to see the number of these nests for miles along the roads. Western Blue Grosbeaks (*Guiraca c. lazula*) were very numerous also on the telephone wires, where the neighboring fields contained a rank growth of nettles, and specimens were obtained grading from the soberly dressed males of the first year to those in the brilliant blue of full maturity.

We located our camp in a deserted shack on top of the levee where we could get the benefit of the scant supply of wind, and where we could be comparatively free from the torments of mosquitoes.

While searching for a camping site, a pair of Long-billed Curlew (*Numenius americanus*) was flushed,—the only ones seen on the trip. In the immediate vicinity of the lake, hordes of Tri-colored Red-wings (*Agelaius tricolor*) had their abode, with an occasional hybrid Red-wing, but the latter seemed to prefer the country farther back from the lake.

The following morning we were up and away in two metal rowboats before daybreak, bound for Pelican Island some three miles away. This we were soon approaching, which in the distance with the sun shining on it, looked like an enormous sheet striped black and white. This effect we soon discovered was caused by the combination of White Pelicans (*Pelecanus erythrorhynchos*) and Farallon Cormorants (*Phalacrocorax a. albociliatus*),—the latter being nearest the shore while the former were farther up on the island. The Cormorants rose first in a body and began circling overhead, but it was not until we were within a hundred yards that the Pelicans awkwardly and uneasily flopped into the air, kicking frantically. They settled far and near on the lake in companies and battalions, while some would return every few minutes to wheel low above us and see what we were up to. Several flocks could be seen at their favorite pastime of floating as mere white specks high up in the heavens.

We found the lake to be exceedingly shallow at this time and one could wade in it almost anywhere in from six inches to two feet of water, though there were a few deeper places. The bottom is of adobe and it is the particular delight of the large carp that infest the lake, to lie in the shallows with their backs sticking out and wallow violently in the ooze. Pelican Island, however, is formed of fine gravel and bits of broken shell.

We estimated that there were six hundred occupied nests about equally divided between the Pelicans and Cormorants. The former had apparently preempted the middle and higher part of the island, while the latter were nesting closer to the water. The nests of the Cormorants were usually well constructed,

but those of the Pelicans ranged from carefully made nests of sticks and trash, and large mounds of gravel with a depression in the top, to mere hollows in the earth. Those of conical form are evidently formed by the old bird first squatting on the chosen spot, and drawing gravel up to her by means of her bill until she has collected a pile of it under and around her large enough to suit her fancy. In some cases eggs had not yet been deposited, and many nests held three eggs,—the greatest number found in any nest; but by far the larger proportion held two eggs. The loss in eggs must have been very great as there were a hundred or so scattered promiscuously around the ground. They were in all stages of incubation. We saw no young at this date, though in examining eggs we could frequently hear the young birds peep.

A charge of number eight shot easily stopped a bird, when with set wings he came down as if for a dive, but the shock of hitting the ground killed him instantly. Another was only winged and it was curious to see how light a tap on the head was enough to give him his coup de grace. Most of the queer horny protuberances on the bill which these birds wear during the nuptial season had been shed, though many still had an inch or so of it loosely attached. As everyone knows who has skinned a Pelican, there is a mass of air cells between the surface skin and the body nearly three quarters of an inch thick which can be inflated at will, and which no doubt accounts for the easy flight and wonderful soaring of this ungainly bird. Their method of securing fish is interesting and almost shows brain work. Just after dark and frequently during the night, loud splashings could be heard. This we found to be caused by the Pelicans forming in line out in the shallows and then starting shorewards with much flapping of wings on the water in order to drive the fish where the water was shoal enough for them to be easily caught by the birds. In fact this is the only method of fishing that they could employ, for the water is neither clear nor deep enough for them to follow such diving tactics as are adopted by *P. californicus* on our coasts.

On one end of the island not occupied by the above two species, several pairs of Avocets (*Recurvirostra americana*) had set up housekeeping, and they evinced much anxiety as we approached their nests. We did not see any young, but although we did find a few incomplete sets, most of the eggs seemed to be heavily incubated. Another find was a set of three peculiarly marked eggs of the Killdeer (*Oxyechus vociferus*); and although no nest was encountered, several Snowy Plovers (*Aegialitis nivalis*) in full breeding plumage were trotting about with a knowing air. A mile away on another mud bank were several more nests of Avocet, and here was congregated a flock of some thirty immature Bonaparte Gulls (*Larus philadelphia*). Near here we noted a few California Gulls (*Larus californicus*)—some adult, but most in the juvenile plumage.

Near the eastern end of the lake was a little mud islet, scarcely a dozen feet wide and well sheltered by tules, on which we estimated that there were fifteen nests of Avocets and forty of Black-necked Stilts (*Himantopus mexicanus*). These birds seemed to consider themselves one large family, as many nests contained five, six, seven or eight eggs—the product of more than one female of course, and we even found eggs of both Stilts and Avocets in the same nest. The lake had evidently risen a little, as several nests were awash. The majority of eggs seemed to be far advanced in incubation and no doubt a large number escaped the rise of water. Our visit aroused great consternation and the Avocets swooped down upon us in true tern fashion, uttering their cry which sounds very similar to that of the Western Gull when disturbed.

Black-crowned Night Herons (*Nycticorax n. naevius*) swarmed in the

tules, and their eggs or newly hatched young no doubt figured prominently on the menu of many very large repellant looking snakes, which at any time might be seen sunning themselves on the broken down tules.

Great Blue Herons (*Ardea h. herodias*) were very abundant and wary as usual. A single Anthony Green Heron (*Butorides v. anthonyi*) was seen, and on the 9th, three white birds were noted flying far overhead—evidently Egrets (*Herodias egretta*). The week before, a bird of this species was killed by a professional hunter.

There were several Caspian Terns (*Sterna caspia*) about, but they did not seem to be interested in any one locality, which was quite the opposite of what was expressed by a number of Forster Terns (*Sterna forsteri*); for the latter showed great uneasiness whenever we approached the spot where they chanced to be fishing. Black Terns (*Hydrochelidon n. surinamensis*) were numerous, monotonously flying back and forth over a certain stretch of marsh, but they did not act as if they were nesting.

Between Kern and Buena Vista lakes there are very extensive swamps, and this is evidently a paradise for water fowl, but on account of interrupted sloughs, tules, et cetera, it is very difficult to work, and it can only successfully be done with the aid of a light canoe. Months could interestingly, profitably and uncomfortably be spent here. A trip up the river to the marshes proved to be a full day's work, and what with frantically rowing against a swift current and wading half of the time up to our necks in mud and water, not much collecting was done. We found Fulvous Tree-ducks (*Dendrocygna bicolor*) and White-faced Glossy Ibis (*Plegadis guarauna*) in some numbers but they did not evince any interest in us except to keep well out of range. As far up the river as we went, every tree had its full share of Black-crowned Night Heron's nests, while the grove of water-killed trees in the mouth of the river was crowded with their nests and those of the Cormorants. Many Great Blue Herons were perched about; but as to their nesting we cannot say, as we had no desire to climb such unstable looking snags.

A fact which impressed us was the great scarcity of ducks other than Ruddy (*Erismatura jamaicensis*). With the exception of these and Fulvous Tree-ducks hardly a score of other individuals were seen at the lake. These were straggling Pintails, Shovellers (*Spatula clypeata*), and Green-winged Teal (*Nctition carolinense*).

On the 11th we started for Fort Tejon, arriving at our camping ground among the oaks and beside a pretty little waterfall in time for a full afternoon's work. We made good use of this waterfall in removing the alkali of Buena Vista.

Cassin and Western Warbling Vireos (*Lanivireo s. cassini* and *Vircosylva g. swainsoni*) and Lazuli Buntings (*Passerina amoena*) were especially numerous by the stream, and a number of nests of the latter were located within a small space among the weeds. A Black-chinned Hummingbird (*Archilochus alexandri*) had her nest right at our front door and seemed in no way disconcerted by our presence.

Between our camp and the ruins of the Fort was as magnificent a grove of giant white oaks as one could wish to see, with undergrowth strongly suggestive of an eastern woods. Below, the floor of the canyon is well watered and wooded, with oak-studded grassy flats at the sides. In such a favorable spot it is small wonder that we found birds to be unusually plentiful both as to species and individuals.

Families of Western Bluebirds (*Sialia m. occidentalis*) were much in evidence. The *Picidae*, represented by Cabanis (*Dryobates v. hyloscopus*), Willow (*Dryobates p. turati*), Nuttall (*Dryobates nuttalli*), and California (*Meelanerpes f. bairdi*) woodpeckers and Red-shafted Flickers (*Colaptes c. collaris*) were busy among the oaks and cottonwoods. In a grove of pines well up the side of the canyon, a pair of Golden Eagles (*Aquila chrysaetos*) were guarding a couple of great nests, one at the top of a tall pine, and the other half way up in the same tree. We did not ascertain which nest was occupied, as neither of us felt equal to climbing the tree. Other old friends were two pairs of Thurber Juncos (*Junco o. thurberi*), and many Slender-billed Nuthatches (*Sitta c. aculeata*), two full grown young of the latter being secured, and a nest full of youngsters located in a knot hole. Western House Wrens (*Troglodytes a. parkmani*) seemed to be as thick as bees, and it was but rarely that a likely looking stub could be passed without arousing keen interest in one of these diminutive songsters.

We saw but a single Long-tailed Chat (*Icteria v. longicauda*) and one Traill Flycatcher (*Empidonax t. trailli*).

Black-headed Grosbeaks (*Zamelodia melanoccephala*) were singing in the canyons; and an occasional California Towhee (*Pipilo c. crissalis*) was noted.

A cold wind arose during the night of the 12th, bringing rain, so, as there was no sign of the gale abating, we broke camp the next day. Four miles above Tejon, at about four thousand feet, we met a Lewis Woodpecker (*Asyndesmus lewisi*), and during an hour's stay at Lake Castac several more were seen. The lake was unusually high, and besides the ever present Coots (*Fulica americana*) and Ruddies, four Pintails and a number of Eared Grebes (*Colymbus n. californicus*) were observed. Northern Violet-green Swallows (*Tachycineta t. lepida*) were darting about the shores, and on a large dead oak were many Western Martins (*Progne s. hesperia*), no doubt nesting in the many holes in this tree. This was the only place where the above species was seen.

Our next breathing spell was in the yucca forest of Antelope Valley, where the bird life was very scarce as to species, for it consisted almost exclusively of Linnets (*Carpodacus m. frontalis*), an occasional Arkansas Kingbird and a few Western Lark Sparrows (*Chondestes g. strigatus*). Mr. Lamb here succeeded in obtaining two close views of a Scott Oriole (*Icterus parisorum*), which, however, he was unable to secure.

It might not be amiss to insert here a few mammal notes, or rather an observation on the Valley Coyote (*Canis ochropus*). While passing through a particularly level region, the wind blew off a sun-helmet which one of us was wearing, and took it bounding and rolling over the short grass at an amazing speed. Upon heading it off in the machine and then making a regular football tackle at it, it was secured. A Coyote was regarding this scene with, we imagine, rather amused contempt. Our sporting blood being aroused by the pursuit of the hat, we decided to give the animal a run also, and accordingly started in his direction. This move interested him but mildly until a charge of number eights at long range helped his decision. He made for a rise of ground, and because of the grade and rough going we were unable to do better than thirty miles an hour. At this speed he seemed unable to gain on us, and after reaching the crest of the hill we began drawing up on him. Due to the untimely interference of a barbed wire fence he managed to escape, but not without taking a few more leaden souvenirs with him.

We reached Elizabeth Lake about two o'clock and spent the rest of the day

in the lee of a strip of willow scrub, combating the wind and preparing specimens. We heard some Fulvous Tree-ducks while here, and saw half a dozen Farallon Cormorants, many Ruddies, a few Redheads (*Marila americana*) and quite a number of unidentified ducks.

An early start the next morning enabled us to reach Los Angeles before nine o'clock.

## NOTES ON CERTAIN KANSAS BIRDS

By ALEX WETMORE

THE EFFECT of the severe winter of 1911-12 on bird life in eastern Kansas is shown by the great scarcity the past fall (1912) of *Dryobates p. medianus*, heretofore one of the most common birds. In the vicinity of Lawrence, from October 12 until November 10, only three of these birds were seen, while in previous years it was nothing unusual to see thirty, forty or even more during a day spent along the streams, and in the creek bottoms. After the tenth of November, at which time weather conditions became more severe in the north, the cold extending even to Kansas, these birds became fairly common again, migrants arriving from the north to spend the winter in the comparatively warm climate of this region.

From these observations we may deduce that, in the area under discussion, there are two groups or "races" in the subspecies *Dryobates p. medianus*: the one purely resident and local, and the other composed of migrants from the north, each being distinct, though inseparable apparently in terms of color or relative measurements. The local, or strictly resident, downy woodpeckers then were almost exterminated by the long-continued cold, protracted storms, when the trees were sheathed in an icy coat, and deep snows of the winter, while the northern birds found in this region merely as winter visitants—birds that of necessity must be considered stronger and more hardy—escaped with fewer mortalities, and were in the spring enabled to return northward and recoup their numbers.

It was interesting also to observe the change in relative abundance in the larger woodpeckers. *Dryobates v. villosus*, usually found in small numbers, was actually common, and *Colaptes a. luteus* likewise had greatly increased. *Centurus carolinus* on the other hand had decreased, being absent from many localities where it was formerly common. The latter is here a strictly resident species, there being no change in its relative abundance between winter and summer, while the other two species have their numbers considerably augmented by migrant birds from the north in the late fall. The larger *Dryobates* and *Colaptes*, then, seem better able to cope with the stringent conditions imposed upon them and even to increase, perhaps in the case of the Hairy Woodpecker, through being relieved of competition with the smaller species of the same genus.

Certain other species were affected noticeably also, for example *Thryothorus ludovicianus*. Since 1905, when observations were begun by the writer in the immediate vicinity of Lawrence, this species has been increasing in numbers, pushing back into the hills, following the brush-covered creek banks, and dry ravines, and steadily, year by year, encroaching upon new territory. During the

present fall, however, but one bird was noted, a male seen along the Wakarusa River, in a locality where the species is usually fairly common; and none were seen in the territory recently occupied by them.

Wintering birds of *Nannus h. himalis* seem also to have been almost completely wiped out, none being observed, though careful search was made for them in localities where formerly they were common.

*Cardinalis c. cardinalis* alone among the Fringillidae seemed to have suffered loss, the birds being rare until the first of November when their numbers were augmented by migrants from the north. Large numbers of quail were killed also in this locality, but recovered through favorable weather during the early breeding season. In the western part of Kansas conditions were much more severe, and it is reported that Prairie Hens and quail were almost entirely exterminated, and that even the jack rabbits have almost entirely disappeared.

These observations would seem to emphasize the well known fact that within a single species or subspecies of bird we have divisions or groups, resident or migrant, as the case may be, within certain defined limits; and when one of these local groups is through any cause greatly lessened in numbers, it regains its former abundance mainly through the increase of the survivors, though slight gains may come through the encroachment of others of the same species from unaffected neighboring areas where competition between the members is severe enough to cause them to seek new haunts.

## SOME NOTES ON THE NESTING OF THE SHORT-EARED OWL

By ARETAS A. SAUNDERS

WITH ONE PHOTO BY THE AUTHOR

DURING the nesting season of 1912 I spent most of my spare time on an area lying about half a mile southeast of the town of Chouteau, Montana. This area consisted of open grassy meadows crossed by a small creek, cottonwood groves along the edges of the creek, and a large area of brush land, overgrown with shrubby cinquefoil, wild rose bushes, and a few scattered willows, buffalo-berry bushes and other shrubs. This brush area formed the nesting ground for a good many birds. Mallards, Sharp-tailed Grouse, Clay-colored Sparrows and a colony of Brewer Blackbirds nested in or beneath the cinquefoils, and in the thickest part of the brush I found the nest of a pair of Marsh Hawks. During the latter part of May and early in June I frequently saw a Short-eared Owl (*Asio flammeus*) sitting in the top of a dead willow bush that was near the Marsh Hawk's nest. I began to suspect that this bird, too, had a nest in the vicinity, but when I searched near the bush, the bird merely flew to a tall dead cottonwood on the border of the creek and sat watching me, giving no sign to show whether his nest was near or not.

Finally, on the evening of June 10, I extended my search to a new part of the brush area, a good 150 yards from the willow bush and still farther from the cottonwood tree. I soon noticed that the owl had left his perch and was hovering overhead watching me. As I went farther in that direction he circled lower over my head and called anxiously a low, short, hoarse note that sounded to me

like "quap". He repeated this note several times and finally dropped to the ground about a hundred feet away from me, flapping his wings and calling a high squealing note as though badly hurt. Later on I watched this performance every time I approached the nest, and have since seen it in other individuals of this species. It is one of the most peculiar and novel methods of feigning wounded that I have seen in any bird. The bird circles at a height of about fifty feet, then drops straight down close to the intruder, until within two or three feet of the ground, then sails low over the grass and brush in the opposite direction from the nest, until a hundred feet or more away when he lights on the ground facing the intruder, squealing as though in great pain, and with wings widespread and flapping. If followed he will wait till one gets within about twenty-five feet, then slowly and carefully folds his wings one at a time, rises and sails a little farther away and repeats the wing flapping and squealing. If one is not watching him when he first drops to the ground, he frequently calls attention to himself by flapping his wings against his sides or breast as he drops, producing a sudden, loud and startling noise that is very surprising in a bird whose flight is ordinarily

perfectly silent. This performance compels the attention so strongly that it seems that it must be quite successful in luring away a coyote or other natural enemy that might venture too close to the nest or young.

When I first saw this performance on the evening in question it immediately gave me a clue to the location of the nest; so I went in the opposite direction from that in which the bird tried to lead me, and soon flushed his mate from the nest. As soon as I had found the nest, the first bird, I presume the male, ceased his attempts to lead me away, and he and his mate circled low about my head, clicking their bills and frequently calling "quap" and occasionally prolonging this



Fig. 38. YOUNG SHORT-EARED OWL ABOUT 22 DAYS OLD; PHOTO TAKEN NEAR CHOUTEAU, MONTANA, JUNE 28, 1912

note to a scream, slurred downward, like that of many of the hawks, but of a curious hoarse quality. The nest was flat on the ground, underneath and surrounded by cinquefoil bushes, and contained nine young. There really was no nest but merely a bunch of young birds huddled together, and if there ever had been a nest, the young had tramped it out so thoroughly that it was now unrecognizable as such. The young were in various stages of development, the youngest being downy and blind while the oldest was well feathered, with yellow eyes wide opened, and showing fear of me by clicking his bill and hissing in much the same manner as a cat hisses at a dog. The young were so close together that I had to separate them to count them.

I now noticed a curious difference in the parent birds. The female, at least the one that had been at the nest with the young, when I found it, had a higher pitched, more squeaky and less harsh voice than the male, when she called "quap." She was also a little more heavily streaked on the breast than was her mate. Consequently I had no difficulty in distinguishing the two birds, and I always found the male on guard in the willow bush or the cottonwood tree, and the

female at the nest with the young as long as they remained in the nest. After they left, both birds were generally on guard, and, when I searched for the young, the female also went through the performance of feigning wounded that I have described above.

On the next morning, June the 11th, in order to get a basis for studying the development and relative ages of the young birds, I examined each one carefully, recording points in the development of the plumage and making measurements as well as I could, of the total length, wing, and bill of each bird. I hoped later to supplement this by further observations, and get a fairly complete record of the growth and development; but owing to the habit the young have, of leaving the nest long before they are able to fly, my studies were not nearly so complete as I had wished them to be. I obtained the approximate ages of the young by estimating that of the youngest bird, and obtaining the differences in ages between the others, by watching their development. The youngest bird I judged to be three days old. It may have been as much as four or five, or as little as two, but the chances are more in favor of three as correct than the other figures. I numbered the birds in my note-book from 1 to 9, beginning with the youngest, and I finally constructed the following table showing the comparative ages and measurements of each bird. These measurements cannot be considered to have the scientific exactness of figures taken by measuring bird skins, because it is difficult to measure a living bird exactly in the field.

No.	Age (days),	Length (inches),	Wing (inches),	Bill (inches).
1.	3	3.35	0.70	0.25
2.	5	4.50	1.00	0.30
3.	7	5.50	1.40	0.37
4.	9	6.50	1.75	0.42
5.	10	6.80	1.95	0.50
6.	12	7.25	2.25	0.48
7.	14	7.50	3.10	0.56
8.	14	7.70	3.18	0.54
9.	14	7.75	3.40	0.52

These figures show among other things, that incubation did not begin until the third egg was laid, and that eggs were laid irregularly after that, at periods of from one to two days.

Aside from this table, I obtained but one other measurement to show the growth. This was on July 1, when I found no. 6 at a considerable distance from the nest, when approximately 31 days old. I had nothing to measure the bird with then, but determined that its wing measured about  $8\frac{1}{2}$  inches, by comparing its length with that of my hand, and measuring my hand later. With these measurements I attempted to construct curves to show the growth graphically, but found the data hardly sufficient to make these of much value. However they did show that the period of fastest growth was between the approximate ages of four and eight days.

My observations on the development of the plumage were as follows. On June 11, when the birds were measured, no. 1 was downy all over, with no sign of feathers. The eyes were closed. The down was of a light cream color. No. 2 had sheathed feathers appearing on the shoulders, wings, back of neck and breast, but nowhere else. The feathers were all tightly sheathed, and the eyes were still closed. No. 3 had feathers coming through on the back, legs and facial disc, while the feathers of the shoulders, wings, back of neck and breast were just beginning to break the sheaths at the tips. The eyes were beginning to open a little. No. 4 had feathers coming through everywhere, and the sheaths breaking on all of them except the wing and tail quills, and the feathers of the facial disc. The eyes were farther opened, but only appeared dull blue through the

slits, and the bird did not appear to see anything. No. 5 was a little more thickly feathered, with eyes wide open. This bird showed fear of me and clicked his bill when I handled him. No. 6 was still farther developed, with the wing quills just beginning to unsheath at the tips. Nos. 7 and 8 were little different from No. 6 save that there was less natal down adhering to the plumage. No. 9 was farther developed. The feathers of the back were unsheathed for half their length, but the wing-quills still only at the tips. The feathers of the facial disc were still tightly sheathed. The bill was rather light colored in the younger birds with a white spot on the front of the upper mandible, just above the tip. As they grew older the bill became darker, and the white spot disappeared, being entirely lacking in the three older birds.

I banded all of these young birds, except no. 1, with bands of the American Bird Banding Association. No. 1 died when about eight days old, when still too young to band. I kept a record of the numbers of these bands, and was consequently able to tell which bird was which, whenever I found them after they had left the nest. On June 28, I found owl no. 2, then approximately 22 days old. This bird had all the feathers well out except the wing quills, and those of the facial disc. The wing quills were unsheathed for about half their length, while those of the facial disc were just beginning to unsheath. On July 1, owl no. 6, then about 31 days old, had the facial disc well unsheathed and dull black in color, while the wing quills were unsheathed for about two-thirds of their length. This bird was still unable to fly.

I kept as careful notes as possible on the character of the food brought these young birds. When I visited the nest in the mornings I usually found food near the nest, but in the evenings it was usually all, or nearly all, gone. On the morning of June 11 there were four mice near the edge of the nest, three of them small rodents of the vole type, dark brown in color, with short tails, and the fourth a mouse of a light yellowish brown color, with white underparts and a long tail. Other mornings I found mice of these two kinds, and once I found the feathers, and part of one wing, of a McCown Longspur. On June 19, the day the last owl left the nest, I found him a few feet away, with several mice, and the hind-quarters of a young cottontail rabbit near him. It was evident that the parents did most, or all, of their hunting at night, gathering a large enough supply to last until the next evening.

There were many ejected pellets near the nest, and in other places in the grass where the young owls remained after they had left the nest. These pellets always contained the fur and bones of small rodents, and I recognized nothing else in them. I believe that the young generally had one whole mouse at a meal, and swallowed it whole. On the evening of June 11 I found owl no. 5 ejecting a pellet. The bird lay on his side, with eyes closed, barely moving all the time that I was near the nest. The pellet was partly out of his throat. It was a full inch in diameter, and the part already ejected was about two inches long. I was not sure at the time that it was entirely natural for the bird to eject a pellet in this manner, and feared the bird might die, but a few days later I visited the nest again, and found this bird well and as lively as the rest.

On the evening of June 11, the same day that I had measured the birds, I found the three oldest birds gone. I supposed for a time that some one had found the nest and taken them for pets, but later found that this was merely a part of the regular program in the life of young Short-eared Owls. On the 14th I again found the oldest remaining bird gone; and on the 16th I found this one in the brush about 20 feet from the nest, and still another one three or four feet

from the nest, also starting to stray away. It was quite apparent that each young owl, when it reached the approximate age of two weeks, strayed off by itself into the brush surrounding the nest, long before it was able to fly. Each bird seems to be in a place by himself, and wanders farther and farther away from the nest each day. I tried the experiment of putting one or two of the young birds that I found back in the nest again, but each time they soon left and could not be found without considerable search the next morning. At first the young were fairly close to the nest, but later were at a considerable distance. On June 28 I found no. 2 about 100 yards away, and on July 1, I found no. 6 at a full 150 yards. The parents evidently cared for all the young, no matter where they wandered, as I often found food or ejected pellets near them; and the parents were usually ready to show me the location of a young bird, by feigning wounded when I approached.

I attempted many times to get photographs of the young birds but did not succeed very well. The young when approached had a habit of flattening themselves down into the grass in a way that I could not make show up well in a picture. I could not make them perch on the bushes at all, and the best pictures I got were taken of owl no. 2 perching on my hand.

On July 1, I found owl no. 6. He was the farthest developed of any of the brood that I had examined. He was quite pugnacious, snapping at my fingers when I attempted to pick him up, and clicking his bill. When I extended my foot toward him, he perched on the toe of my shoe and picked savagely at my shoe lace. I lifted him up into the air in this way, when he spread his wings to keep his balance and tried to climb up to my knee. Once or twice he screamed, a long, hoarse, terrifying scream, a note I had not heard before from either young or parents.

I heard this scream once again on July 22, at a point fully three hundred yards from the nest site. I supposed that it was one of the young owls again, but I searched the grass in vain for him. One of the parents was near, sitting on a fence post, but not feigning wounded as before, and hence not helping me to find the young bird. This point was across an irrigating ditch from the nesting site, so it is quite probable that the young bird could fly a little by that time.

## SYNOPSIS OF THE RECENT CAMPAIGN FOR THE CONSERVATION OF WILD LIFE IN CALIFORNIA

By W. P. TAYLOR

ONE of the most hopeful signs of our generation is the fact that we as a people are growing in a knowledge of our deficiencies.

This is particularly true in the broad domain covered by the phrase "conservation of natural resources," and even more strikingly apparent in that subdivision of the larger subject with which those interested in our native birds and mammals are most intimately concerned.

Sensible of the fact that the Cooper Ornithological Club is in a position peculiarly favorable to its taking an active part in work for conservation, the

Northern Division of that organization, on January 20, 1912, requested its president to appoint a permanent committee on Conservation of Wild Life, and suggested a similar course of action to the Southern Division. The two committees were appointed forthwith, and went to work immediately.

For the purpose of this Synopsis it is well to note that steps were taken to interest other Californian organizations in the wild life situation. On the initiative of the Northern Division committee just referred to, a meeting of representatives of societies interested was called on November 7, 1912, in the rooms of the Sierra Club, in San Francisco. Eight constituencies were represented, and after a consideration of ways and means, a constitution was drafted and a temporary organization effected. This was the inception of the California Associated Societies for the Conservation of Wild Life. At a later meeting the organization was perfected and headquarters established at the California Museum of Vertebrate Zoology. Altogether about ten thousand persons are by this means bound together in a federation to educate the body politic and stimulate legislation in behalf of this great natural asset.

The organization showed activity from the beginning. An Advisory Committee, made up of nearly a hundred influential persons from all sections of the state, was appointed, as were also committees on Legislation and Revision of Game Laws. A campaign fund of fifteen hundred dollars was raised, a series of recommendations as to desirable changes in the laws concerning wild life was submitted to the Fish and Game Commission, several bills were drawn up for introduction in the legislature, and preparations were made to take active part in the work of law-making. Since a law prohibiting the sale of wild game was regarded as the most important and far-reaching of all measures practicable at this time, several news-letters concerning the proposed law (the Flint-Cary bill) were published and despatched to the newspapers of the state early in the campaign.

Three Western Wild Life Calls, the first issue of sixteen pages, the second and third of eight pages each, were published. These were sent to the members of the legislature, to libraries throughout the state, to many clubs and societies, to influential individual citizens, and to the newspapers. Of the first issue there were mailed nearly seventeen thousand copies. Hundreds of personal letters were sent out by the President and Secretary. Through the co-operation of the Museum of Vertebrate Zoology of the University of California and the California Associated Societies the Secretary was enabled to lobby continually in behalf of wild life conservation for the two months of the second half of the bifurcated session of the legislature. On strategic occasions other members of the Executive Committee and of the organization visited Sacramento.

Although the response to the appeals of the Associated Societies was widespread and gratifying, it must not be thought that no opposition was encountered. The Hotelmen's Association of California lobbied persistently against the non-sale bill. In some sections of the state the people proved to be unacquainted with the facts and necessities of the situation and very often to be violently prejudiced against adequate conservatory measures. Several newspapers, particularly the San Francisco *Examiner*, continually and openly fought the conservationists, charging bad faith and collusion with the gun club sportsmen.

However, the gain as regards wild life conservation at this session of the legislature has been tremendous. Bills embodying the following improvements were passed by both houses of the Legislature, and at the present writing await only the Governor's signature, which it is practically certain will not be withheld:

## LAW HERETOFORE

## LAW AS AMENDED BY THE PRESENT LEGISLATURE (1913)

- |  |   |
|--|---|
| 1. Sale of band-tailed pigeons and wild ducks allowed.   | 1. Sale of band-tailed pigeons and wild ducks prohibited (ducks may be sold during November).   |
| 2. Shipment of protected wild game permitted.  | 2. Shipment of protected wild game prohibited.  |
| 3. No civil service for fish and game wardens.   | 3. Civil service for fish and game wardens.   |
| 4. Propagation of wild game in captivity not provided for.   | 4. Propagation of wild game in captivity provided for.  |
| 5. Use for food of birds shot destroying crops permitted.  | 5. Use for food of birds shot destroying crops prohibited.  |
| 6. Possession of plumage of wild birds permitted.  | 6. Possession of plumage of wild birds prohibited for any purpose.  |
| 7. Bag-limit on ducks 25 a day, 50 a week.   | 7. Bag-limit on ducks 15 a day, 30 a week.  |
| 8. Bag-limit on quail 20 a day, no weekly limit.   | 8. Bag-limit on quail, 15 a day, 30 a week.   |
| 9. License required to hunt but not to fish.   | 9. License required to either hunt or fish.   |
| 10. No provision in law for the Fish and Game Commission carrying on educational work or scientific investigation. | 10. Provision in law that Fish and Game Commission may carry forward educational work or scientific investigation as the necessity may arise. |
| 11. No specific appropriation for the scientific and educational work of the Fish and Game Commission.             | 11. Appropriation of \$5000 for carrying forward educational work and scientific investigation.   |
| 12. Aliens allowed to hunt and bear firearms.  | 12. Aliens prohibited from hunting and bearing firearms.  |
| 13. Seasons on the Rallidae, Limicolae, Band-tailed Pigeon, Wood Duck, Ibis, Sea Otter.                            | 13. Absolute protection accorded the Rallidae, Limicolae (except the Wilson Snipe), Band-tailed Pigeon, Wood Duck, Ibis, Sea Otter.           |

Furthermore, no losses were registered. An attempt was made to open a season on robins, meadowlarks, and blackbirds, as well as to remove protection from the so-called "fish-eating birds." These attempts, however, fortunately came to nought.

Two Joint Resolutions of interest to wild life conservationists were adopted. One memorializes Congress to set aside a part or all of the National Forest in California as a game preserve. The other requests the President of the United States to propose to the governments of the world the negotiation of an International Congress for the Conservation of Wild Life, to be held in San Francisco in 1915.

Several of these measures were the subject of terrific assaults from a few disaffected and misguided law-makers. Their passage was only possible through continuous and vigorous attention on the part of friends of wild life conservation within and without the legislature. Of course the changes above listed do not represent all the improvements registered during this legislative session. They are merely those in which it may be assumed the California Associated Societies are most interested.

At one time the publication of a list of those persons to whom credit is due for our series of victories was contemplated. So many friends were found, however, that this is an impossibility. The success of the campaign should be credited: (1) to those individuals and organizations who donated money to the cause and

who wrote to their legislators urging the reform legislation; (2) to the persistent work of the Fish and Game Commission; (3) to the cooperation of the Fish and Game Commission of Oregon; (4) to the cordial cooperation of the ablest and most enlightened of California's law-makers; (5) to the leaders of the national conservation campaign in New York City and Washington, D. C.; (6) to the far-sighted sportsmen who put real conservation above personal interest; and (7) to the unselfish devotion of some of the busiest of California's leaders, newspaper editors, officials of women's clubs, doctors, lawyers, ministers, university professors, and business men.

In conclusion, it may be said that while the laws on the statute books are good, still others are badly needed. But there must be something more than laws if the situation is to be permanently improved. A public sentiment more favorable to wild life protection must be awakened. This can only come through a broad education, which shall mean not only completer knowledge of the wild life and of the game laws, but also a greater willingness to abide by the laws when these are known and understood, and an increased respect for the authorities constituted to enforce them.

## FROM FIELD AND STUDY

**Harris Hawk in California.**—I got a fine specimen of *Parabuteo unicinctus harrisi* on November 17, 1912, a male in full plumage. The bird when seen was perched on a telephone pole overlooking my neighbor's poultry yard, in Mission Valley, near San Diego. The lady shot it on suspicion, and sent it over to me. The skin is now in the collection of the San Diego Society of Natural History and is said to be the first recorded for San Diego County and the second for California.—HENRY GREY.

**An Unusual Nest of the Sora Rail.**—On June 18, 1912, I collected a set of eggs of



Fig. 39. NEST AND EIGHTEEN EGGS OF THE SORA RAIL; PHOTOGRAPHED JUNE 18, 1912, NEAR CHOUTEAU, MONTANA

the Sora Rail (*Porzana carolina*) that numbered eighteen. This nest was located in a marsh near Chouteau, Montana. It was first found on June 14, at which time it contained but thirteen visible eggs. Having failed to get a successful photograph of this nest when it was first found, I visited it again on the 18th, when finding the visible number of eggs increased to seventeen I decided to collect it. After I had photographed it and removed it I found the eighteenth egg, embedded in the nest material in the bottom of the nest. In the accompanying photograph but fifteen eggs are visible, the others being in a lower layer.

It is probable, from the number of eggs found on the different dates, that the eggs were laid daily, and that the last one had been laid the morning of the 18th. Had it been possible it would have been interesting to have left the nest for another visit to see whether the bird would have laid more, but I had no opportunity to visit it again. The eggs were all the way from fresh to advanced in incubation. From appearances, some of them would have hatched in a few days more. The nest was placed in thick rushes, supported by them, and roughly arched over by drawing the tops of the ones surrounding the nest together. It

was built of dead rushes, and the bottom of it rested in the water, which at that place in the marsh was about six inches deep.—ARETAS A. SAUNDERS.

**Early Nesting of the Band-tailed Pigeon.**—As supplementing the nesting notes on the Band-tailed Pigeon in *THE CONDOR* for January, 1913, the following notes from one of my old note-books may be of interest.

March 6, 1877, Laguna Mountains, twenty miles north of Campo, San Diego County, California: *Columba fasciata*; one egg; parent flew from nest, and from tree to tree, fluttering its wings while perched, evidently to lead me away. Bird shot and preserved; on dissection, proved to be a male. Egg near hatching. Nest very slight and flat, composed of oak twigs, placed on a small branch against a larger branch of a deciduous oak, then bare of leaves, about eight feet from the ground, in a forest of mixed oak and pine, at about 5,500 feet altitude. No other pigeon seen.

This is the nest alluded to on page 124 of Bendire's *Life Histories of North American Birds*. The context implies that this nest was found in Arizona but this was a mistake.

I have seen no Band-tailed Pigeons in San Diego County now for two or three years.—FRANK STEPHENS.

**Some Rare Transients of the Corral de Quati Ranch.**—The Corral de Quati Ranch is in Santa Barbara County, California. It lies in the southern foothills of the San Rafael Mountains, and is a mile or so north of Los Olivos. These observations were taken with an opera glass, along the Alamo Pintado Creek.

On March 1, 1907, I discovered in a sycamore on the creek's edge a company of nine Cedar Waxwings (*Bombycilla cedrorum*) sitting in a row on a bare twig. They were fluffed up like birds in a picture of winter—soft grey birds, soft grey twig, soft grey sky. At times they flew into the mistletoe, eating the berries, and clinging gracefully like titmice. Their note was a soft "see-see."

On April 27, 1909, a flock of Pine Siskins (*Spinus pinus*) had been with us in the same white oak tree for a week, busily investigating moss and bark and leaves. Their notes were a wheezy "scree-ee-ee", and much low twittering somewhat after the manner of the Arkansas Goldfinch, which they resembled.

About May 11, 1912, I found a small number of Western Blue Grosbeaks (*Guiraca caerulea lazula*), male and female, about the pigpens. These birds remained several days and appeared to be picking up the grain where the pigs were fed. The males' coats were particularly striking, the chestnut bars of the wings being in sharp relief against the prevalent blue of the body. The males were more timid than the females, this cautiousness being made necessary, no doubt, because of their more noticeable coloring.—VIRGINIA FAUNTLEROY FOX.

**American Egret in San Diego County.**—Noticing some reports regarding the Egret (*Herodias egretta*) still surviving I might say that I saw on October 13, 1912, at least twelve at one time, and on October 15 there were nine. Again on November 28, 1912, I saw five, and on December 25 I saw over twenty all in a bunch.

All these birds were on the south end of San Diego Bay near the salt works. On previous years I never saw more than four at any one time on the Bay in that district; and but a single individual was to be seen once in a while at the north end of the Bay or on Mission Bay.—HENRY GREY.

**Anna Hummer in Ferndale, Humboldt County, California.**—From October 15 to about the middle of November I was interested to note the almost daily appearance in my garden of an adult male Anna Hummingbird (*Calypte anna*). He came many times to a fuchsia within four feet of my post of observation, and hovered fearlessly over the bright flowers.

Late in October, a neighbor living in the next block asked me to name a green and gray hummingbird larger than the "red one" (Rufous), with throat of magenta, which was then visiting her garden frequently. Her description would seem to confirm my observation.

I have known *Calypte anna* intimately for twenty-five years, in southern California, so there was no possibility of mistaken identification.—CHARLOTTE M. WILDER.

**Western Goshawk in California.**—I see very little or no mention of the Goshawk (*Astur atricapillus striatulus*) in published lists appearing in *THE CONDOR* from time to time. I might say that I got a fine specimen, a female in full plumage, on January 6, 1907, at North Palo Alto, San Mateo County.

In October, 1900, at West Rialto, in San Bernardino County, I saw another but could not get a shot at it. It was trying to catch doves feeding on the weed seeds, but failed, on the two trips it made to the place while I was there. It was very wild, and I could not get within a hundred yards of it.—HENRY GREY.

# THE CONDOR

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## EDITORIAL NOTES AND NEWS

The July issue of *THE CONDOR* will contain the annual Club Roster. It is important that accuracy be secured in addresses and in spelling of names. To this end it is desirable that corrections in last year's Roster be reported as soon as possible to Mr. H. S. Swarth, Museum of History, Science and Art, Los Angeles, California, who will have in charge the compilation of the new list.

Ridgway's new "Nomenclature of Colors," reviewed in another column, meets our most sanguine expectations. By its use color naming can be put upon an exact basis. Hereafter all descriptions involving color terms should accord with the permanent standards here set.

Messrs. J. Eugene Law and Allan Brooks spent the month of April on a collecting trip through Arizona. Five days were spent at Tucson, approximately three weeks in the Chiricahua Mountains at from five to nine thousand feet altitude, and a few days at Rodeo, New Mexico. About 300 bird-skins were obtained,—not a large number, but of that exquisite make which characterizes the output of these careful collectors. After spending a few days in west-central California Mr. Brooks left on May 10 for his home in British Columbia.

Mr. Harold C. Bryant, well known for his contributions to economic ornithology, has joined the staff of the California Museum of Vertebrate Zoology. As Assistant Curator of Birds, he will, in addition to a share of the routine work, undertake in collaboration with Mr. Grinnell a study of the game birds of California with special reference to the problem of game conservation.

Our fellow Club member Mr. Harold H. Bailey is about to publish a book upon the "Breeding Birds of Virginia." There will be many illustrations, both figures and plates, and the text is designed to meet popular needs in a state which has hitherto lacked a local bird book.

It is of interest to note the expanding careers of individuals whose early predilections have been strongly in the line of bird study. A gratifying sequence of events presents itself in the case of Mr. William L. Finley. At first an ardent and successful student of life histories, subsequently identified with the Audubon movement, he has now become State Game Warden of Oregon. In this office Finley has been able to devise and put into practice methods of game conservation which are in the first rank for efficiency. He has secured the confidence of the state legislature, so that an almost ideal set of laws are now in force, by which Oregon's bird-life is rendered practically immune to many of the factors which have proven so fatal to the birds of many of the Eastern states.

## PUBLICATIONS REVIEWED

BIRDS COLLECTED OR OBSERVED ON THE EXPEDITION OF THE ALPINE CLUB OF CANADA TO JASPER PARK, YELLOWHEAD PASS, AND MOUNT ROBSON REGION. By J. H. RILEY. The Canadian Alpine Journal, Special Number; published by the Alpine Club of Canada; Banff, Alberta; 1912 (reviewer's copy received March 19, 1913); 8 vo., pp. 1-97, 20 pls., 1 map; price one dollar.

The expedition of which this report treats was undertaken conjointly by the Alpine Club of Canada and the Smithsonian Institution, N. Hollister and J. H. Riley being appointed from the United States National Museum to take part in the field work, and to report upon the resulting collections. The publication contains, besides the account of the birds (pp. 47-75), reports upon the mammals, by N. Hollister, and the plants, by Paul C. Standley.

Seventy-eight species of birds are listed. The two new subspecies named as a result of

the trip, *Melospiza m. inexpectata* and *Passerella i. altivagans*, were described in an earlier, preliminary paper, confined to descriptions of these races, the present report being a general account of the entire collection. The region visited, comprising adjoining portions of southern Alberta and British Columbia, includes parts of two very different faunal areas, and a study of the material collected is accordingly productive of many interesting and illuminating facts in regard to the manner of occurrence of certain of the species and sub-species encountered.

Among the critical comments the following seem to be of particular interest to Californian ornithologists: Breeding specimens of *Leucosticte t. tephrocotis* from this region are declared to be indistinguishable from birds from the California Sierras. *Zonotrichia leucophrys* and *Z. gambeli* are considered to be specifically distinct, as both were found breeding at the same locality, each retaining its distinctive characters, and no intergrades being found. *Junco hyemalis* and *Junco oreganus* are also believed to be distinct species, a conviction shared by the present reviewer, upon very similar evidence to that advanced by Mr. Riley. The Orange-crowned Warbler of the region is called *Vermivora celata celata*, Oberholser's *V. celata orestera* not being recognized; similarly in treating the Myrtle Warbler (*Dendroica coronata*), McGregor's *D. coronata hooveri* is ignored. Robins collected, declared to be intermediate in characters between *Planesticus m. migratorius* and *P. m. propinquus*, are considered as "belonging undoubtedly to the form described as *Planesticus migratorius caurinus* Grinnell", but the name *migratorius* is used to designate them.

Specimens of *Wilsonia pusilla pusilla* were taken at a British Columbian locality, and *W. p. pilcolata* at a point in Alberta, farther east, a peculiarity of distribution not explained or commented upon by the author.

The report contains a quantity of valuable and authoritative data from a little known region, and is a correspondingly welcome addition to the ornithological literature of the west.—H. S. SWARTH.

COLOR STANDARDS AND COLOR NOMENCLATURE. By ROBERT RIDGWAY. pp. (1-4); i-iv; 1-44; frontispiece; pls. LIII. Washington, D. C., 1912 [January 16, 1913]. Published by the author. Price \$8.20.

The names of colors as well as names of animals and plants need to be exact and stable. No scientific worker whose investigations necessitate the use of color names can fail keenly to realize both the indefiniteness of most color designations, and the lack of a standard of color values that in exactness and

systematic arrangement adequately meets the requirements of modern science. Most of the existing color manuals are very unsatisfactory in practical use, either from want of proper designations or sufficient number of colors, from cumbersomeness, or poor arrangement. Furthermore there is no correlation between them. The best one is Mr. Ridgway's previous color book, "Nomenclature of Colors for Naturalists", which, however, has long been out of print.

The present work, confessedly not a technical treatise on color, aims definitely to standardize colors and color names, and to provide an adequate nomenclature, with samples of color sufficient for all practical descriptive and other related purposes. To this task Mr. Ridgway brings a lifetime of experience as artist and zoologist, and twenty-five years' special study of the subject. That he has succeeded is evident from even a cursory examination of this book.

The text treats first of the plan of the work, including the classification and preparation of the colors, of the scales adopted, and their designation and arrangement on the plates. Under "Color Names" the selection of the terms adopted is discussed, and the almost ridiculous chaos of present color nomenclature is clearly shown. Under "Color Terms" our author defines some of the most important terms used in the literature of color. Then follow the tables of percentages adopted as the standards in the present work; a list of the actual pigments used in the preparation of the fundamental pure colors; and an alphabetical list of the colors represented on the plates, with their proper symbols. All the names of colors in the author's original "Nomenclature of Colors for Naturalists" have, for the purpose of perpetuating these standards, been adopted in this new book, and a list of such of these as are not represented on the plates is given, together with the symbols by which they may be designated. A list of some of the most important books on the subject of color completes the text.

The fifty-three plates constitute, of course, by far the most important part of the volume. The color samples, each 25 by 12.5 millimeters, are mounted on a background of neutral gray, which for this purpose has many advantages over a white page. They have been prepared with great care by an improved process which produces an even matt surface, much more satisfactory for comparisons than a smooth or glossy color; and also insures absolute uniformity throughout the entire edition of the book.

The colors are arranged on each plate in three vertical rows, each representing a certain hue, together with three tints (mixtures with definite percentages of white) and three

shades (mixtures with definite percentages of black), grading to white at the top and black at the bottom of each column. Every color has a name and also a symbol, consisting of a number and a letter, and the intermediates which do not appear on the plate have similar symbols. The color scheme is probably the simplest that can be devised for a really scientific arrangement, and seems to be eminently satisfactory. The six fundamental spectrum colors which are here accepted as standards have been permanently fixed by the determination of their wave lengths; so that at any future time, should necessity demand, they can be exactly reproduced. These wave-lengths, as given, should, however, have been carried out to another decimal point, to correspond with the other wave-lengths with which they are compared.

The first twelve plates contain the pure colors, i. e., the shades and tints of the thirty-six colors and hues into which the spectrum series is here divided. Twelve of the following fourteen plates reproduce the same series with the addition of 32 per cent of neutral gray; and the two interpolated plates, distinguished by asterisks after the color numbers, have blue and blue violet colors with a slightly different percentage of gray. Plates XXVII to XXXVIII represent the colors of the first twelve plates with the addition of 58 per cent of neutral gray; and the remaining plates show three series, with respectively 77, 90, and 95.5 per cent of neutral gray, but in these every other hue is omitted because too little different. On the last plate a series of neutral grays and one of carbon grays is also added. Altogether 1115 named colors are represented, not counting black and white, as against 198 in Mr. Ridgway's original "Nomenclature of Colors for Naturalists". Furthermore, by the use also of intermediates, a total of 6506 colors can be designated.

While "Color Standards and Color Nomenclature" is primarily intended for naturalists such as botanists, entomologists, herpetologists, conchologists, ornithologists, mammalogists, and the like, it should prove valuable, as well, to manufacturers and merchants in various lines of business.

It is not, we think, too much to say that this book is by far the most important contribution to the subject of color standardization that has ever seen light, and that its appearance marks an epoch in color nomenclature. That it will soon prove indispensable to scientists generally, we have no doubt; and its adoption will go far toward reforming the present unsatisfactory usage, and will bring nearer the millenium of clearness and definiteness and uniformity in color names.—HARRY C. OBERHOLSER.

INDEX TO PAPERS RELATING TO THE FOOD OF BIRDS IN THE PUBLICATIONS OF THE UNITED STATES DEPARTMENT OF AGRICULTURE, 1885-1911. By W. L. McATEE (U. S. Dept. of Agric., Bureau Biol. Surv., Bull. 43, January 9, 1913, pp. 1-69).

The most recent publication of the United States Bureau of Biological Survey is an "Index to papers relating to the food of birds." To the average reader this will doubtless prove an uninteresting bulletin and one which will soon find its way to a back shelf, there to remain untouched. To the teacher, to the student of birds, and to the research student, however, this bulletin will appeal and will soon become thumb worn. To one who continually searches for the index, which is too often lacking at the end of scientific books, the annotated one at hand strongly appeals.

With a little search, information which is interesting to everyone can be obtained. The introduction points out the fact that during the twenty-six and one-half years of the existence of the Biological Survey there have been published 131 documents relating to the food of birds. Notes on the economic status of no fewer than 401 species of native birds and 59 species of foreign or introduced birds are to be found in these publications. A computation made by the reviewer shows that in the first 39 bulletins alone, over 2500 pages have been devoted almost exclusively to discussions of the economic aspects of ornithology.

When people become fully aware of the economic value of bird life there will certainly redound to the Biological Survey the credit of having insistently pointed out the interaction existing between organisms, and the consequent importance of preserving our native birds. A knowledge of the economic value of a bird assures its protection. As this value is largely dependent upon what the bird eats, the spreading broadcast of dependable evidence as to the food of birds is all important as a means of assuring needed protection for them.

Many readers may also fail to appreciate the work of the author in the preparation of the index. Sixty-seven pages of index and annotated bibliography do not appear on the surface to represent a great amount of labor. However, compilation of this kind costs a great many long hours of tedious work and the proof-reading of this type of publication must be considered the most difficult next to that of tables.

Mr. McAtee has given us a useful bulletin that will, at least, be appreciated by all those who have occasion to work in this field.—H. C. BRYANT.

## MINUTES OF COOPER CLUB MEETINGS

### SOUTHERN DIVISION

FEBRUARY.—The February meeting of the Southern Division of the Cooper Ornithological Club was held on February 20, 1913, at the residence of Mr. J. E. Law, Hollywood, California, with President Law in the chair and the following members present: Messrs. Law, Daggett, Chambers, Zahn, Lelande, Howell, Miller, Howard, Lamb, Rich, Hubbs, Grey, Layne, Fischer, Judson, Dickey, H. M. Holland, C. B. Isham, and Allan Brooks.

The minutes of the January meeting were read and approved.

Upon motion made and duly carried, the following applicants, proposed at the January meeting, were unanimously elected to active membership: E. E. Everett, Ventura, California; Mabel C. Gage, Worcester, Mass.; Claus J. Murie, Portland, Oregon; J. B. Perrin, Tucson, Arizona; Asa Sleeth, Portland, Oregon.

The following application for membership was presented: Sidney B. Peyton, Sespe, California, proposed by L. Peyton.

After adjournment those present enjoyed the hospitality and refreshments provided by their host and hostess. Mr. and Mrs. Law have a charming new home on the hillside, and the former's fine collection of birds and eggs, well and safely housed in a fireproof room adjoining his study, were examined with much interest by those present.—A. B. HOWELL, *Secretary*.

MARCH.—The regular monthly meeting of the Southern Division was held at the Museum of History, Science and Art, Thursday evening, March 27, with President Law in the chair and the following members present: Messrs. Daggett, Grey, Hubbs, Law, Lelande, Miller, Van Rossem and Swarth. The minutes of the February meeting were read and approved, followed by the reading of the Northern Division minutes for February. In regard to certain resolutions passed by the Northern Division, pertaining to the Flint-Cary bill, and asking for the support of the Division, it was decided that as the bill had already been brought before the senate, it was useless to take any formal action, especially as Mr. Law and Mr. Howell each reported that they had already separately in the name of the Club, written and telegraphed messages in support of the measure.

In this connection the following motion was made by Mr. Miller, seconded by Mr. Lelande, and carried: That the Southern Division commends and endorses the action of the presi-

dent and secretary in forwarding telegrams to the proper legislators expressive of the Club's attitude in regard to the Flint-Cary bill; and that the Southern Division approves the stand taken by the Northern Division in this respect.

One new member was elected: Sidney B. Peyton, Sespe, California. The following names were proposed: F. J. Smith, Eureka, California; J. Bagley, Eureka, California; B. M. Marshall, Eureka, California; E. A. Dial, Santa Barbara, California; B. F. Case, Ferndale, Washington; T. J. Fitzpatrick, Los Angeles, all proposed by W. Lee Chambers; and E. E. Lusher, Van Nuys, California, proposed by H. C. Bryant.

A communication was read from A. B. Howell, tendering his resignation as secretary of the Southern Division. The resignation was accepted, and H. S. Swarth was elected to fill the office during the balance of the year. Adjourned.—H. S. SWARTH, *Secretary*.

APRIL.—The monthly meeting of the Southern Division of the Club was held at the Museum of History, Science and Art, Thursday evening, April 24, with the following members present: Messrs. Cookman, Daggett, Davis, Grey, Hubbs, Lamb, Layne, Miller, Robertson, Willett, and Swarth. Mr. J. J. Robinson was a visitor. In the absence of the president Mr. Daggett acted as chairman. The minutes of the March meeting were read and approved, followed by the reading of the Northern Division minutes for March and April.

The following were elected to membership: E. E. Lusher, Van Nuys, California; T. J. Fitzpatrick, Los Angeles; B. F. Case, Ferndale, Washington; E. A. Dial, Santa Barbara, California; B. M. Marshall, Eureka, California; J. Bagley, Eureka, California; F. J. Smith, Eureka, California. New names were presented as follows: H. C. Ohl, Los Banos, California, by H. C. Bryant; Thomas Trenor, San Francisco, by J. Grinnell; Edward P. Rankin, El Monte, California, by H. C. Bryant; George F. Sykes, Corvallis, Oregon, by J. Grinnell.

Two communications were read, one from Mrs. J. W. Wheeler, of Tucson, Arizona, proffering an exchange of specimens with any one interested, game birds being desired; the other from Theodore Roosevelt, addressed to Joseph Grinnell, and expressing interest in regard to the recent report upon the status as a game bird of the Band-tailed Pigeon in California.

Following this came the reading of the business manager's report upon the publication of Pacific Coast Avifaunas numbers 7 and 8. This was duly accepted and ordered filed.

Business disposed of, the members were en-

tertained during the remainder of the evening by Mr. Willett, who gave a talk upon his recent trip to Laysan and adjacent islands under the direction of the Biological Survey. A representative lot of Laysan birds, and an extensive series of photographs illustrated his remarks. Owing to the trip having been made during the winter months, while previous expeditions had all visited the islands during the summer, a number of new and interesting facts were discovered, rather surprising in view of the attention the islands had already received from ornithologists. Adjourned.—H. S. SWARTH, *Secretary*.

#### NORTHERN DIVISION

MARCH.—The regular monthly meeting of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, California, on February 20, 1913, at 8 p. m. Mr. Bryant acted as president in the temporary absence of President Carriger who took the chair after the discussion of the paper of the evening. The following members were present: Mrs. Grinnell, Misses Atsatt, McGraw, and Wythe, and Messrs. Barrows, Bryant, Carriger, Chandler, Grinnell, Heinemann, Ray, Shelton, Stone and Storer. Mrs. Oscar Maurer, and Misses Capp, Harper, Lemon, Lillibridge, Little, and Wetmore, and Mr. Rankin, were present as visitors.

The paper of the evening by Mr. J. Grinnell on "Methods in Field Observation and Collecting" was first presented. The speaker outlined the various purposes in field work, then the methods of observation and note-writing, quoting from some of his own notebooks as examples, and finally described the outfits necessary for all sorts of field collecting. Considerable interesting discussion was indulged in after the presentation of the paper.

The business of the meeting was then taken up. The minutes of the February meeting were read and approved and the minutes of the Southern Division meeting for February were read.

Miss Mabel C. Gage, Worcester, Mass., Thos. Trenor, San Francisco, Calif., Claus J. Murie, and Asa Sleeth of Portland, Oregon, and John B. Perrin, Tucson, Ariz., were elected to membership. The application of L. D. Duschak, 506 U. S. Custom House, San Francisco, Calif., proposed by J. Grinnell, was read.

Mr. Grinnell summarized the report of the Business Managers of the Club on Avifaunas Nos. 7 and 8. The report received a vote of approval. Mr. Bryant reported for the permanent Committee on the Conservation of Wild Life and pointed out some of the recent

work carried on in connection with the present session of the California Legislature. The California Associated Societies has at present sufficient funds to carry on an active campaign in connection with the no-sale and other game bills. A second Western Wild Life Call has been issued by the Associated Societies. Mr. Bryant further reported that a fair degree of success was obtained in the hearing of the no-sale bill before the Joint Committee from the two houses on February 19th.

The names of J. Eugene Law and W. Lee Chambers were presented as candidates for the offices of Business Managers for 1913 and unanimously elected. The work of Mr. A. C. Bent in planning to continue the publication of "Life Histories of North American Birds", as commenced by Capt. Charles Bendire, was favorably commented upon. Adjourned.—TRACY I. STORER, *Secretary*.

APRIL.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, California, on April 17, 1913, at 8 p. m., with President Carriger in the chair and the following members present: Mrs. Grinnell, the Misses Atsatt and Wythe, and the Messrs. Carriger, Grinnell, Heinemann, Ray, Shelton, and Storer. Mrs. Allen and Miss Olive Swezy were present as visitors. The minutes of the March meeting were read and approved and the Southern Division minutes for March were read.

Mr. L. D. Duschak, San Francisco, Calif., was elected to membership, and the following new applications were read for the first time: Edward P. Rankin, El Monte, Los Angeles County, Calif., proposed by H. C. Bryant, and George Francis Sykes, 322 Agricultural Hall, Oregon Agricultural College, Corvallis, Oregon, proposed by J. Grinnell. The following applications were read from the Southern Division: F. J. Smith, J. Bagley, B. M. Marshall, E. A. Dial, B. F. Case, T. J. Fitzpatrick, and E. E. Lusher. Mr. Grinnell reported briefly on the conditions and results already obtained at the State Legislature.

The discussion of the evening upon a "Reference List of Birds of the San Francisco Bay Region" was opened by the Secretary. Mr. Grinnell had anticipated the general trend of the discussion and had prepared a synopsis of the work, which he presented, showing what work would be necessary to produce a creditable list.

The following motion was introduced and carried: It is the sense of this meeting, after discussion, that it is eminently desirable that a "Reference List of the Birds of the San Francisco Bay Region" be compiled by the Cooper Ornithological Club. Adjourned.—TRACY I. STORER, *Secretary*.

**For Sale, Exchange and Want Column.**—In this space members of the Cooper Club are allowed one notice in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, *Eagle Rock, Los Angeles County, California*.

**FOR SALE**—Complete file of *Auk*, vols. 1-4 bound in black morocco, vols. 5-29 in numbers as issued; also 50 duplicates. Wanted: *O. & O. Semi-Annual*, vol. 1, nos. 1, 2; vol. 2, no. 1; *Wilson Bulletin*, nos. 1-65; *Bird-Lore*, vol. 1, complete; *Oologist*, vol. 3, no. 4, vol. 4, no. 1, vol. 5, nos. 5, 6, vol. 6, nos. 4, 10, vol. 7, no. 8, vol. 15, nos. 2, 3, vol. 16, nos. 4, 6, 7, 9, vol. 18, no. 7.—LAUREN TREMPER, 136 No. Dewey St., Philadelphia, Pa.

I AM making a collection of game birds, and would be glad to know of any members who might want to exchange bird skins.—MRS. J. W. WHEELER, Tucson, Arizona.

**FOR SALE**—For benefit Massachusetts Audubon Society: The twenty-nine volumes of *The Auk*; the eight volumes of *The Nuttall Bulletin*; both belonging to the late Henry A. Purdie. Address:—E. PURDIE, 194 Clarendon St., Boston, Mass.

**WANTED**—*Cal. Traveler and Naturalist*, all but vol. 1, nos. 2, 3, 5, and vol. 2, no. 3; *Old Curiosity Shop*, vol. 8, nos. 2 and 12; *West Am. Scientist*, nos. 1, 3, 4, 33, 52, 61, 68-73, 94, 96, 97, 101, and many other periodicals. Cash or exchange.—FRANK L. BURNS, Berwyn, Pa.

**WANTED**—A male of any of the following species of hummingbirds: 426, 427, 428, 432, 436, 439, 440.1 and 441. Only A 1 skins wanted, for which I offer three times their catalog values in exchange. Can offer A 1 sets from the northwest and elsewhere.—J. H. BOWLES, The Woodstock, Tacoma, Wash.

**FOR SALE OR EXCHANGE**—*Auk*, vols. XXIII, XXIV, XXV, IX (except no. 3); *Warbler*, vols. I, II; *Fern Bulletin*, vols. VI-XIV, complete; Coues' *Birds of Northwest*; Ridgway's *Birds of N. & Mid. Am.*, vol V; Turner's *Contrib. Nat. Hist. Alaska*; Nelson's *Nat. Hist. Cott. in Alaska* (both with colored plates of birds); *Cruise of Corwin* (nat. hist.); *Ethnology Reports* (many of these superb volumes); Marsh's *Dinocerata*; Leidy's *Fossil Vertebrates*; Cope's *Cretaceous Vertebrata*; Cope's *Crocodylians, Lizards & Snakes of N. Am.*; *Eng. Sparrow in N. Am.*; N. A. Faunas; Smithsonian and Nat. Museum Reports and Proceedings, etc., etc. **WANTED**—*Auk*, vols. I to VII, XIX, XXVII and later; *Nidologist*, vol. I, nos. 2, 6; *Osprey*, vol. I, no. 2, vol. IV, no. 3; *Jour. Me. Orn. Soc.*; *Bull. Mich. Orn. Club*; and other nat. hist. literature.—DR. T. W. RICHARDS, U. S. NAVY, 1207 19th St., N. W., Wash., D. C.

HAROLD H. BAILEY announces that the J. P. Bell Publishing Co., of Lynchburg, Va., have started work on the publication of his book, "The Breeding Birds of Virginia", which they hope to have before the public on or about June 1, 1913. There will be 14 original full-page colored plates of birds, which, with the 108 half-tones, represent the greater part of the species of birds figuring in the text of over 300 pages. Virginia being the overlapping boundary of many of the northern and southern forms, the field covered should be of special interest to the ornithologist. As this will be a limited edition, those desiring to secure a copy should notify the author at Newport News, Virginia, as early as possible. The publishers are noted for their high class work; and both they and Mr. Bailey guarantee that the whole work will be above the ordinary. The price will be \$3.00.

**NOTICE**.—A mistake occurred in Mr. Charles Jefferys' advertisement in last issue. His address is 15, Beaufort West, Bath (not "Balte"), England.

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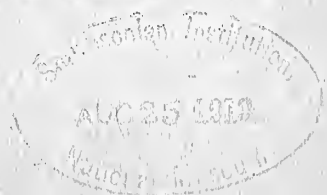
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Number 4



COOPER ORNITHOLOGICAL CLUB



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Volume XV

July-August, 1913

Number 4

## A NEST OF THE DUSKY HORNED LARK

By CLARENCE HAMILTON KENNEDY

WITH ONE DRAWING BY THE AUTHOR

WHILE walking through the sage brush on March 26, I almost stepped on the nest of a pair of Dusky Horned Larks (*Otocoris alpestris merrilli*). The Dusky Lark is the most common bird in the brush areas of the Lower Yakima Valley, but nevertheless this is only the second nest I have found in four seasons. Because of the very quiet and furtive habits of the birds, they never betray the location of nests, which are found only by stumbling onto them.

This one was a cup-shaped depression, dug in the sand at the base of a sage bush, thickly lined with soft grass, leaves and stems, and with shreds of sage brush bark. In the bottom was a thick layer of the soft downy pappus of some composite. The nest contained three young, which were not more than two days old, for they were very small and their eyes were not yet open, while they were scantily covered with creamy down. I lingered over the nest several minutes, but the bird which I supposed was a parent remained on a fence post fifty yards away, and did not show any great distress. One young opened his bill but none made any sound.

I visited the nest again four days later, on March 30. As on the first visit, no parent bird was discovered near the nest, but after I had spent several minutes trying to adjust a camera for a picture, one of them circled about at a distance of thirty feet uttering sharp cries, and finally flew to a fence fifty yards away, where it perched during the remainder of my stay. The three young on this day had increased wonderfully in size. They were so large that they were crowding out of the nest. The illustration shows them as they appeared at this time. Their eyes were wide open and they were fully feathered, with only a vestige of down about the neck. The individual birds occupied the same positions in the nest that they had on my previous visit. With the exception of the white underneath the

body, they were uniformly dark brown with a crescent shaped, or in some cases a v-shaped, creamy spot at the tips of the feathers. They were very quiet in the nest taking no notice of my proximity further than closing their eyes, which they kept closed until I had been near the nest for a minute or two. As their bright eyes are their most conspicuous part, perhaps this closing of them is an aid to their remaining undiscovered by predatory animals.

My third visit to the nest was on April 1. It was empty, but probably the young had left in due time, as the old birds were more anxious than before while I remained in the vicinity. The young had left the nest, probably the sixth day after hatching, at the latest, the eighth day. While seemingly a very early nesting



Fig. 40. DUSKY HORNED LARK—A FAMILY GROUP

time and one of very short duration, it is entirely in keeping with the breeding habits of the other inhabitants of the sage brush of this part of the Yakima Valley. Here the rainfall is only eight to twelve inches and most of it falls between September and March. Reproduction in nearly all animals takes place coincidently with the very short growing season of plant life, which occurs with the first warmth of spring and before the dry spring winds have entirely robbed the soil of its scanty supply of moisture. March weather here is cold and raw, but I have noticed in the case of the horned larks' nests that each was placed on the warm south side of a bush; also that insects were numerous, especially ground species such as ants and beetles.

## SIERRA STORMS AND BIRDS

By F. S. HANFORD

AFTER the last of the heavy winter storms piles up great quantities of snow on the peaks and higher elevations of the Sierras, there comes a time when the sun shines for successive days and the iron grip of winter is lifted from the land. From now on bright and sunshiny weather is the rule, except for several light storms occurring in May and June, and the mid-summer thunder showers in July or August. The spring storms after April are comparatively short in duration, lasting but a day or so, but in the course of a few hours four or five inches of wet and heavy snow may fall. Alternate periods of rain and sunshine soon turn the snow to slush and it quickly vanishes, though not without considerable damage to nesting birds, especially those species that nest on the horizontal branches of conifers.

The summer thunder storms are severe above 8,000 feet elevation. While abundant showers of life-giving rain refresh the lower levels, hail and snow, varied with periods of drenching rain, combine to render life miserable to the traveler higher up. At Lake of the Woods, July 12, 1912, such a storm overtook us, lasting, with intermissions, for seven days. Great banks of cumulus clouds would mount into the clear sky over the southern horizon about noon, and in an hour we would be deluged with floods of rain, varied with half hour periods of hail, lasting sometimes far into the night. The hail stones which fell during these storms averaged from one half to one inch in diameter, and, plunging and ripping through the foliage of the trees, they would strike the ground with great force, rebounding several feet. After being struck on the head by several stones, I had no wish to have the performance repeated, and always sought shelter as soon as the bombardment began.

The destruction caused by severe hail storms to the nests and young of the mountain birds is at once apparent. Many species, finches, tanagers, Evening Grosbeaks and others, are found nesting until late in July in the Pyramid Peak region. Some of the late nests, perhaps, are the result of the earlier ones being destroyed by snow or jays; others contain second broods.

The few notes transcribed below were hastily written down during the storm and after, and may prove of interest. Although almost two months were spent in the high Sierras in 1912, bird study was a secondary consideration during the trip, and the nests examined were discovered by accident. Probably if a systematic search had been made, many more victims of the storm would have been found.

A mother Cassin Purple Finch continued to feed her young in a nest high up in a hemlock during a few hours of rain; at the first crashing downpour of the hail, the nestlings were silenced and the parent was seen no more.

Other nests were examined during the week of storm, and in almost every case they were found abandoned, the young dead, the nests battered and soggy. We were informed of a nest of the Western Evening Grosbeak containing young birds, on the opposite shore of the lake, but on visiting that locality a day afterward no traces of the birds could be found.

Of the destruction of the nests of ground building birds, a single illustration will be sufficient. A nest with eggs of the White-crowned Sparrow was found in a situation usual with this species, in the shelter of bushes and growing vegetation. In this instance the small, dense bush that sheltered the nest could have up-

held several inches of snow. The hail-stones, however, found their way between the branches and made short work of the eggs.

As an instance of ground building birds building in well sheltered spots, in the regions of storms, I will mention several nests of Thurber Junco. July 21 two nests of the Junco were discovered on small stone ledges, well underneath projecting blocks of granite on the terraced slope of Pyramid Peak, granite, utterly bare of soil, extending underfoot in all directions. What would seem to be a more congenial spot for the species was a low thicket of dwarfed pines, encircling a tiny alpine garden on the shore of a lake not far away. However, the nests and eggs under the rock roof were not harmed at all by the violent dashes of hail.

Earlier in the season, at Bijou on the southern shore of Lake Tahoe, I was surprised to find two nests of the Junco built inside of tin cans lying in a meadow. Eggs in one nest and young in the other were not injured by several inches of snow which fell at that time. Later I was informed that this method of nest building with Juncos was not uncommon in the vicinity of Bijou.

## AN INTRODUCTION TO THE STUDY OF THE EGGS OF THE NORTH AMERICAN LIMICOLAE

By DR. R. W. SHUFELDT

WITH SIX PHOTOS

**I**T WOULD seem that up to the present time no contribution has appeared which has been devoted to descriptions of the eggs of the limicoline birds of this country, and certainly none that has been illustrated by reliable figures of the eggs of the principal genera composing this most interesting assemblage. There are, to be sure, various books extant, in which brief descriptions of these eggs are given, indeed, one or two such books with colored illustrations of them, but they do not belong to the class of literature to which reference is made. Major Bendire's magnificent volumes did not reach the shore and water birds, a fact that every ornithologist in this country has, at one time or another, mentioned with the most sincere regret. It may be said, too, in passing, now that Mr. A. C. Bent is doing such admirable work in the direction of completing that elegant classic it is to be hoped that he may be so fortunate as to command the means to bring out, as illustrations for it, plates of colored figures of eggs of all the water birds of North America, in a way that Bendire would have done, had he lived to accomplish it.

The collection of eggs of North American birds in the United States National Museum is truly of a magnificent character; it forms a part of the material under the care of the Division of Birds of that institution, where it is cased in the best class of modern cases, and arranged in such a manner as to be readily available for the oölogical student. There is also a most beautiful display of birds' eggs and nests in the halls of the ornithological exhibit in another part of the main building. Any responsible ornithologist of standing may study these eggs, but they have not been so used in the present contribution. This would have required far more time than I have at my command at present; moreover, the eggs of our limicoline birds are there in large series, consisting of hundreds of specimens; to have touched them at all would simply have meant for me to

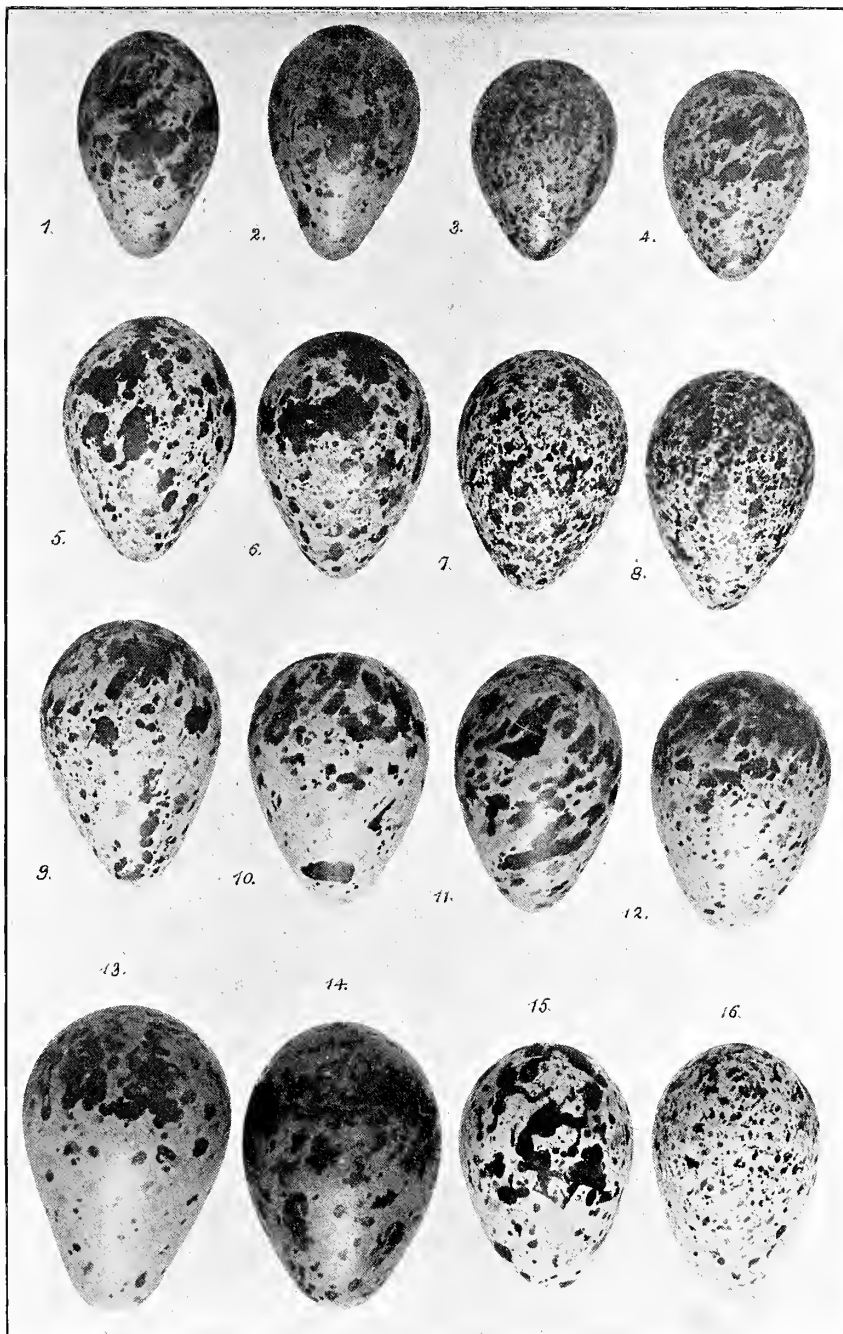


Fig. 41. NOS. 1-4, RED PHALAROPE (*Phalaropus fulicarius*): NOS. 1 AND 2 FROM ONE SET, NOS. 3 AND 4 FROM ANOTHER, EACH OF FOUR EGGS. NOS. 5-8, WILSON PHALAROPE (*Steganopus tricolor*): NOS. 5 AND 6 FROM ONE SET, NOS. 7 AND 8 FROM ANOTHER, EACH OF FOUR EGGS. NOS. 9-12, DUNLIN (*Pelidna a. alpina*): NOS. 9 AND 10 FROM ONE SET, NOS. 11 AND 12 FROM OTHER SETS, EACH OF FOUR EGGS. NOS. 13, 14, EUROPEAN SNIPE (*Gallinago gallinago*), FROM TWO SETS OF FOUR. NOS. 15, 16 SPOTTED SANDPIPER (*Actitis macularius*), FROM TWO SETS OF FOUR. SLIGHTLY LESS THAN NATURAL SIZE.

apply myself to the task as a whole, and produce a mass of measurements (averages), to have brought to light a great quantity of important scientific history of them, and, finally, to have given illustrations in color of the eggs of all our *Limicolæ*. The work would have occupied me for the better part of a year, and, as I have just remarked, my time would not at present admit of such an undertaking.

It has occurred to me, however, that an introduction to the study of the eggs of the birds of this group would be of no little value. The results of such an examination are presented here, and all that I have been able to set forth is due to my study of the elegant collection of birds' eggs composing the cabinets of Mr. Edward J. Court of Washington, D. C., to whom I am very glad to acknowledge my indebtedness.

Mr. Court's collection is at his own home. He has allowed me to borrow from it, in preparing this paper, all the eggs of shore birds that I could possibly use, and I may say here that he has trays of them, filled almost to overflowing, the result of scientific collecting extending over many years.

In this collection I find the eggs of Phalaropes; of the Avocet and Black-necked Stilt; Woodcock, European and Wilson Snipe; the Dunlin and Black-tailed Godwit; Willets, the Ruff, Plovers, Sandpipers, the Long-billed Curlew (eighteen specimens), the Whimbrel, the Lapwing, three species of Oystercatcher, and others. Examples of all these were taken to my home, where I made photographs of them (each specimen natural size); they are reproduced as the six figures illustrating this article.

With respect to the position of the *Limicolæ* in the system, based upon the morphology of the known members of the group, it has been found that they form a Suborder, which in my Classification of Birds, I place between the Supersuborder CHARADRIIFORMES and the Supersuborder STERNEORNIITHIFORMES<sup>1</sup>.

As we know, the *Limicolæ*, or "Shore Birds", are arranged between the *Ralli* and the *Gallinæ* in the classification adopted for the A. O. U. *Check-List* (1910), a relationship that is not supported by the anatomy of the birds in question, whatever other factor may have been employed toward the adoption of such a scheme. And again, the *Limicolæ*, in the A. O. U. *Check-List*, are divided into seven families, namely the *Phalaropodidæ*, containing the phalaropes; the *Recurvirostridæ*, or the avocets and stilts; the *Scolopacidæ* (snipes, sandpipers, etc.); the *Charadriidæ* (plovers); the *Aphrizzidæ* (surf-birds and turnstones); the *Hæmatopodidæ* (oyster-catchers), and the *Jacamidæ* containing the jacanas.

This assemblage, in the United States avifauna, is represented by about seventy-seven species and subspecies combined, the great bulk of them belonging to the *Scolopacidæ* and the *Charadriidæ*, or the great snipe-plover group.

So numerous is this array that it would be quite out of the question to describe and compare the eggs of all of them in this article. In many instances it is impossible to distinguish the eggs of a subspecies from a species, as most oölogists know. With this fact in mind—taken in connection with the rarity of the eggs of some of the species, rendering photographs of the latter the more desirable for publication—I selected the eggs which are here figured for my purpose.

To represent the phalaropes, choice was made of the eggs of the Red and Wilson Phalaropes, and the illustrations of them are here given on fig. 41, nos. 1-8. It will at once be observed that the eggs of the latter bird are considerably larger

1. Shufeldt, R. W., An Arrangement of the Families and the Higher Groups of Birds. Amer. Nat. vol. xxxviii, nos. 455-456, Nov.-Dec., 1904.

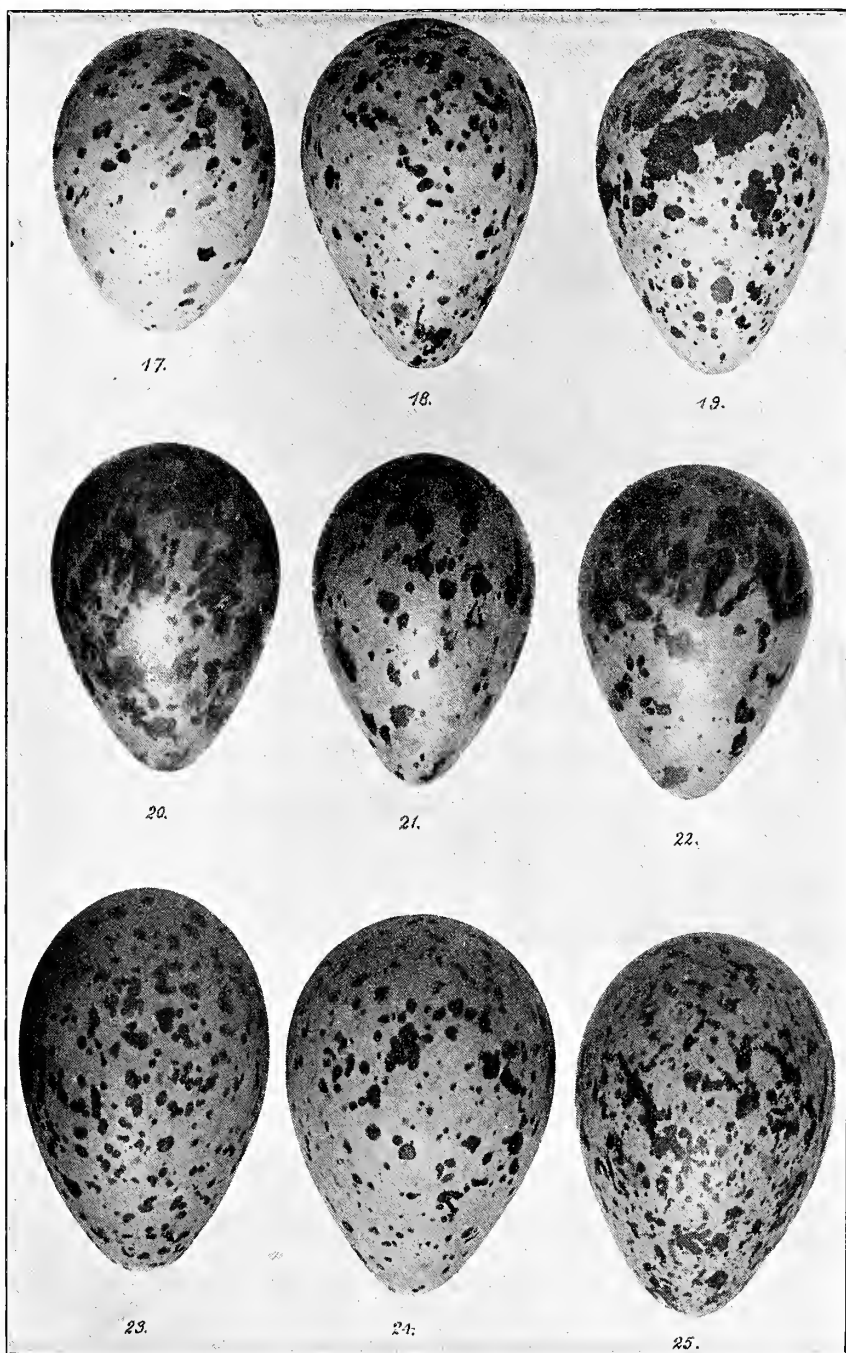


Fig. 42. No. 17, AMERICAN WOODCOCK (*Philohela minor*). Nos. 18 AND [19, REDSHANK (*Totanus calidris*); FROM TWO DIFFERENT SETS. Nos. 20-22, RUFF (*Machetes pugnax*); SET OF FOUR. Nos. 23-25, AVOCET (*Recurvirostra americana*); FROM THREE DIFFERENT SETS. SLIGHTLY LESS THAN NATURAL SIZE.

than those laid by the Red Phalarope, while the color and markings are quite different in the two species. Coues remarks in the last edition of his "Key" that the eggs of *P. fulicarius* cannot be distinguished from those of *Lobipes lobatus*, a statement I cannot vouch for, as I have no eggs of the latter bird before me at the present writing.

As Ridgway, Coues, Reed, and many other authors have published the *sizes* of all the eggs described below, in most cases based on large series of specimens (averages), I have not deemed it necessary to enter very extensively into this part of my subject. Moreover, I have tested some of the data here referred to, and I find it, as a rule, quite correct. Again, the *shapes* of the eggs here considered are likewise easily to be appreciated from an examination of the figures, as these latter are absolutely accurate. It is quite another matter when we come to *color*, and there are but few ornithological magazines that can afford to publish such oölogical luxuries as correctly colored plates of the eggs of birds.

All the eggs shown on fig. 41, including the phalaropes, are of nearly natural size. As a rule, the ground color of the eggs of the Red Phalarope (*P. fulicarius*) is darker than that of the Wilson (*Steganopus tricolor*), being of deep greenish-olive; while the markings upon the eggs, even in a single set, vary very considerably. They are, however, of a dark bistre brown, being blotched over the egg irregularly, though principally at the butt and middle. There are also, in the same color, scraggly markings and innumerable fine little specks, the whole effect being a dark egg, thickly marked nearly all over with a rich, deep brown.

Eggs of *Steganopus tricolor* also vary somewhat in size and shape, and still more in their color pattern (nos. 5-8). The ground color of those before me is of a light, buffy clay shade, with the markings a deep chocolate brown, or brownish-black. The distribution of these markings is well shown in nos. 5-8. In the case of the egg shown in no. 6, the *entire butt* is covered over with one large even blotch of this deep brown color. Only a part of this shows in the figure; but when the egg is viewed end on, this big blotch covers more than half the area in view. In some sets, the speckling is mostly fine, with only a few scattered larger dots, as shown in nos. 7 and 8. The eggs of this phalarope average in size about  $1.30 \times 0.90$ .

The *Recurvirostridae* are, in our avifauna, represented by two birds, the Avocet (*Recurvirostra americana*), and the Black-necked Stilt (*Himantopus mexicanus*), eggs of both of which I have been enabled to present figures of here. Avocets' eggs are shown on fig. 42, nos. 23-25, and those of the Stilt on fig. 45, nos. 46 and 47. As we would naturally expect to find them, the Avocet's eggs are larger than those of the Stilt, though sometimes their markings are alike in pattern, as will be appreciated by comparing nos. 25 and 46. Eggs of the American Avocet vary somewhat in color, form, and size; but, judging from the sixteen eggs of this species before me at this writing, these variations are in no particular as great as we find it to be the case in some other limicoline species.

This statement does not agree with the description given by Coues ("Key," vol. II, p. 791), who says for this bird: "Eggs 3-4, as variable in size, shape, and markings as the parents;  $1.80-2.10 \times 1.25-1.45$ ," followed by a description of the colors, markings, etc., that does not agree with the specimens in Mr. Court's collection. Ridgway, who says not a word about the varying of Avocets' eggs, makes a truer statement, thus: " $1.93 \times 1.35$ , pale olive, olive-buff, or drab-buff (rarely creamy buff), thickly spotted (sometimes sparsely lined also) with dark brown or black" (*Manual*, p. 146).

Pale olive-buff is the ground color of the Avocets' eggs at hand, and the dark

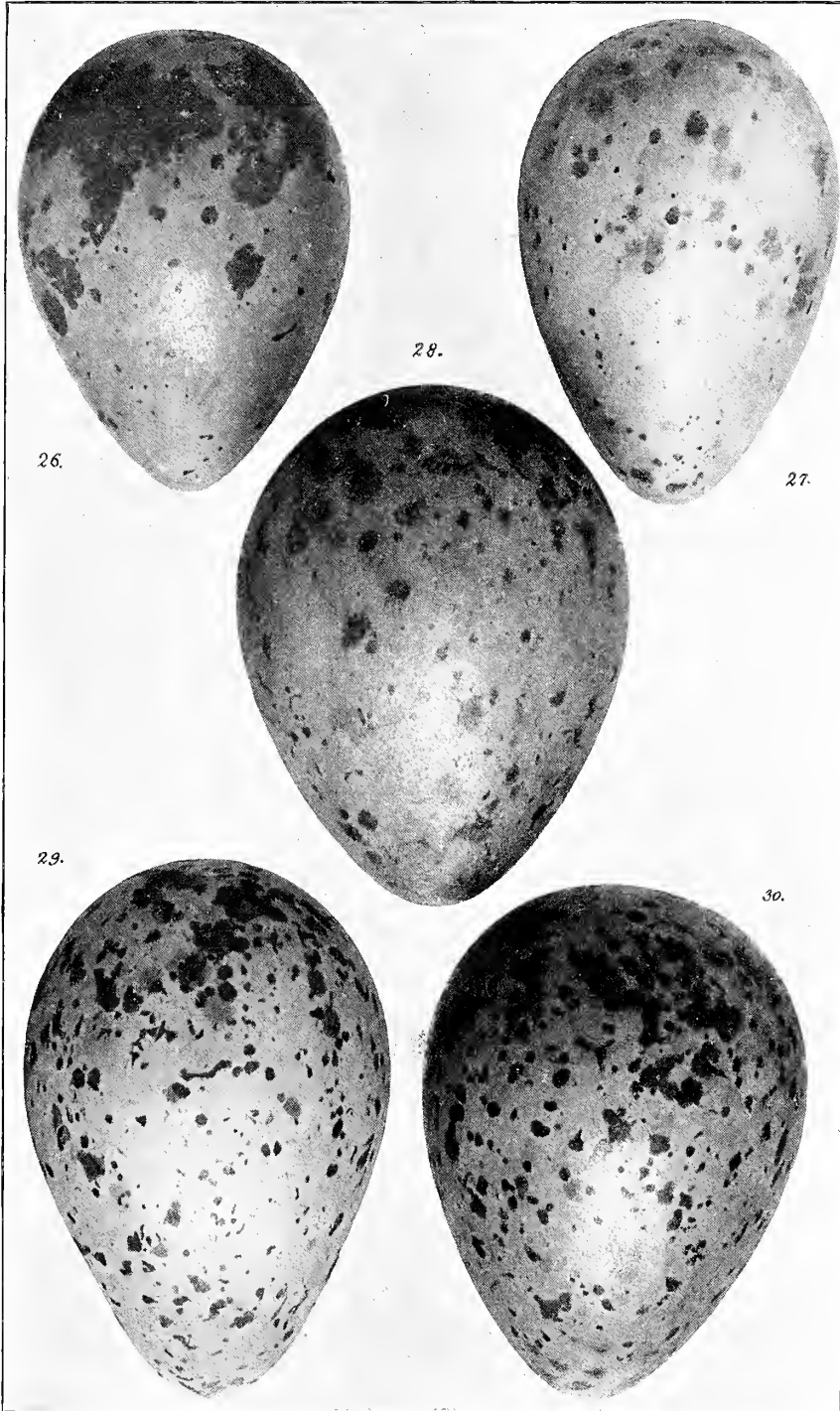


Fig. 43. Nos. 26, 27, WHIMBREL (*Numenius phaeopus*); FROM TWO DIFFERENT SETS OF FOUR EGGS EACH. NOS. 28-30, LONG-BILLED CURLEW (*Numenius americanus*); FROM THREE SETS OF FOUR EGGS EACH. SLIGHTLY LESS THAN NATURAL SIZE.

brown, or nearly black, blotchy dots (often confluent) and *smearcd ones* that mark them more or less all over, is the rule with them. These markings vary but little, being simply thicker in some specimens than in others.

Similar in general color, in patterns of markings, and in form, the eggs of the Black-necked Stilt (*Himantopus mexicanus*) closely resemble those of the Avocet, a fact Mr. Ridgway long ago pointed out in his "*Manual*," page 147, when he stated, in regard to this species of Stilt: "Eggs 3-4, 1.79 x 1.23, similar in coloration to those of *Recurvirostra americana*." See nos. 46 and 47 of fig. 45 of the present paper. Coues likewise stated in the last edition of his "*Key*" (pp. 792, 793) that the eggs of the Stilt "resemble those of the Avocet, but average decidedly smaller," while his description of them is different from those of other describers: "Eggs 3-4, pyriform, 1.60-1.85 x 1.15-1.25; greenish-drab or pale brownish-olive to dark ochraceous, boldly marked all over with spots and splashes of blackish brown."

Passing to the *Scolopacidae*, there is first to be noticed the pretty eggs that the Woodcock (*Philohela minor*) lays (no. 17, fig. 42). This egg is generally more rotund than the eggs of limicoline birds ordinarily are, the Woodcock itself being a stocky species. The eggs in Court's collection are of a pale clay color, very faintly tinged with lilac. They are spotted and blotched, chiefly toward the butt, with irregular, rusty-brown spots, and a still fewer number of pale lilac or faint purplish-gray. These become very much smaller in size and fewer in number toward the apex or pointed end. Coues gives these spots as "numberless," which I have never found to be the case. As to their size he also states: "averaging 1.50 x 1.18; a short broad one 1.40 x 1.20; a long, narrow one 1.55 x 1.15" ("*Key*," 5th ed. p. 804).

Swann<sup>2</sup> describes the eggs of the European Woodcock (*Scolopax rusticola*) thus: "Eggs: 4; pale buff, blotched with pale and dark reddish-brown, and with underlying lilac blotches; shape somewhat globular: 1.70 by 1:30."

Both the European Snipe (*Gallinago gallinago*) and the Wilson Snipe (*Gallinago delicata*) lay very different eggs from those of *Philohela minor*, or, indeed, any of the woodcocks. Eggs of the first-mentioned species are shown on fig. 41 of this article in nos. 13 and 14, while those of the Wilson Snipe are given on fig. 44, nos. 31-33. It is likely that sometimes the eggs of these two species closely resemble each other, and this is not far from being the case with respect to two of the eggs before me, while others are very different. For examination I have, at the present time, two sets of each species of these snipes, all having four eggs to the set, which is the usual complement. On the figures, the eggs are all reproduced nearly natural size, and their forms are absolutely accurate.

Sometimes the eggs of the Wilson Snipe are of a *very dark* olive-brown, the blotches and markings being of a deep bistre, and occurring chiefly near the larger end (nos. 32 and 33). Instead of blotches—or at least associated with them—we find scrawly scratches as shown in no. 33. The Wilson Snipe also lays a palish olive colored egg, with smaller brown spots and blotches, and a few pale lilac spots interspersed among them (no. 31). These chiefly encircle the butt. The European Snipe also lays both light colored and dark colored eggs, somewhat similarly spotted and marked.

Much to my surprise Swann describes the eggs of *Gallinago gallinago* as being, "pale yellowish, with an olive tinge, blotched with reddish-brown and blackish, and with underlying lilac marks; 1.60 by 1.15" (*loc. cit.* p. 178). Ridgway

2. Swann, H. Kirke, *A Concise Hand-book of British Birds*, London, 1896, p. 177.

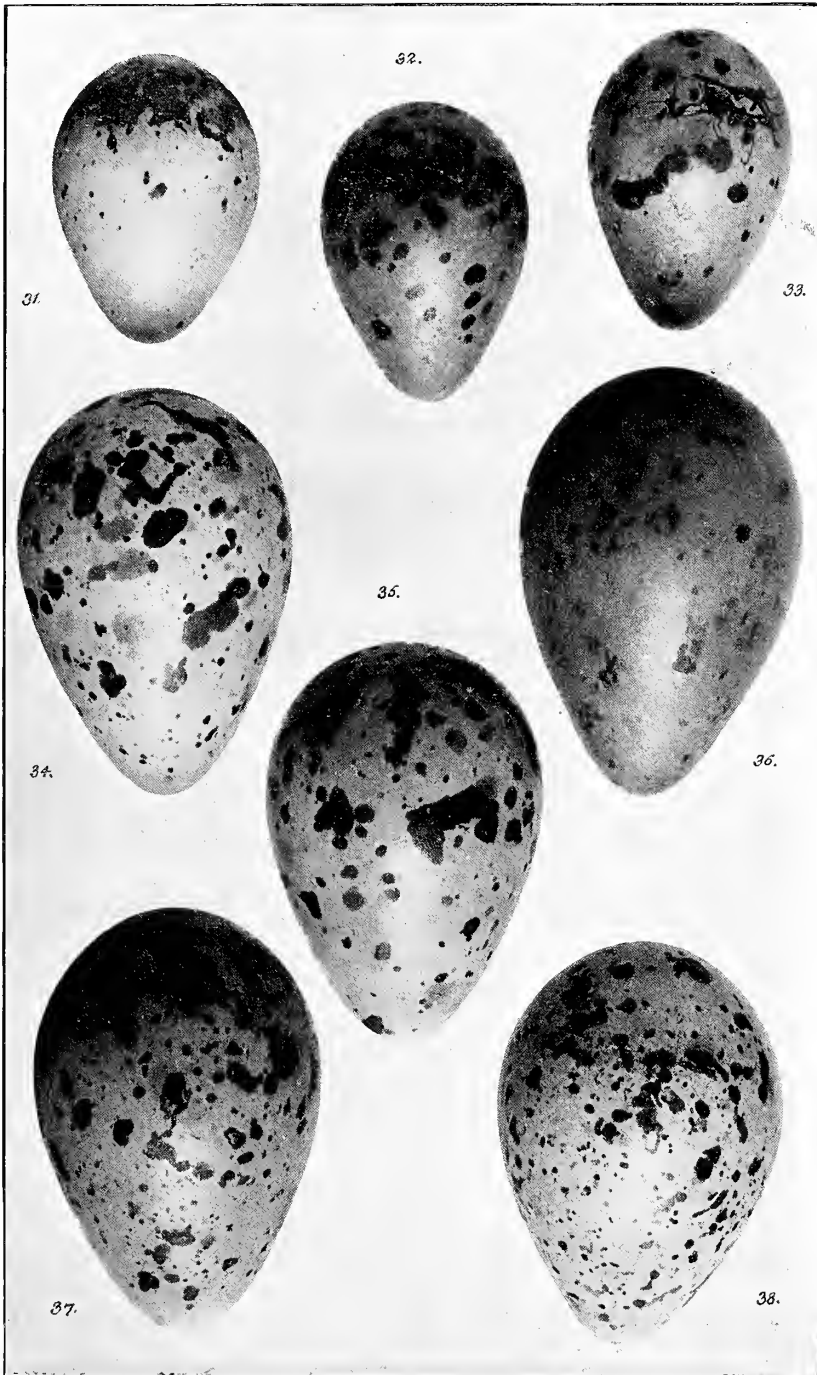


Fig. 44. NOS. 31-33, WILSON SNIBE (*Gallinago delicata*); NO. 31 FROM ONE SET, NOS. 32 AND 33 FROM ANOTHER, EACH OF FOUR EGGS. NOS. 34 AND 35, WESTERN WILLET (*Catoptrophorus s. inornatus*); FROM TWO DIFFERENT SETS OF FOUR EGGS EACH. NO. 36, BLACK-TAILED GODWIT (*Limosa limosa*); FROM A SET OF FOUR. NOS. 37 AND 38, WILLET (*Catoptrophorus semipalmatus*); FROM TWO DIFFERENT SETS, EACH OF FOUR EGGS. SLIGHTLY LESS THAN NATURAL SIZE.

in his "*Manual*" does not commit himself either on the form or the color of the eggs of the European Snipe.

I select for description among the eggs of the stilts and the sandpipers those of the Dunlin (*Pclidua a. alpina*). Mr. Court has four sets of four each of the beautiful eggs of this species in his collection, and from these I select, for illustration, the characteristic ones given on fig. 41, nos. 9-12.

Passing over what Doctor Coues had to say in his "*Key*" about Dunlins and their eggs, we find that Ridgway, without giving any measurements, says of "*Tringa alpina*" that they (the eggs) are of a "pale olive-buff, spotted, somewhat spirally (sometimes speckled), with different shades of vandyke-brown and purplish-gray" (*loc. cit.* p. 159). Those before me are all of an extreme pale olive as to ground color, the various markings being a deep brown. These latter run all the way from large blotches to the finest of specks. They may be chiefly at the larger end, or they may not. Sometimes the larger blotches may all be at the butt, with a single one at the apex (no. 10). As Ridgway truly says, the blotches are very often *spirally* inclined (no. 11), doubtless produced as the egg passes down the oviduct. In size these eggs average  $1.40 \times 1.00$ .

Of the four godwits (*Limosa*) found in the avifauna of this country, I select the eggs of the Black-tailed (*L. limosa*) to represent their oölogy. Doctor Coues, in the last edition of his "*Key*," had the godwits all mixed up, believing, as he states, the Hudsonian Godwit (*L. hamastica*) to be the "strict American representative" of the "European Black-tailed Godwit, *L. limosa*"—and so on. Inasmuch as this was the case, the descriptions of the eggs of godwits by that author would hardly be considered trustworthy.

For *Limosa limosa*, Ridgway says on page 164 of his "*Manual*": "Eggs  $2.17 \times 1.50$ , deep grayish olive, indistinctly spotted with deeper olive-brown." This description very neatly fits the four eggs of a perfect set I find in Mr. Court's collection, a representative one of which I photographed, and which is here reproduced in no. 36 of fig. 44. In one of these eggs the spotting is very faint and meagre, a confluent blotching being massed at the butt.

Coming next to the willets, I have before me the eggs of both the Willet (*Catoptrophorus s. semipalmatus*) (fig. 44, nos. 37, 38), and the Western Willet (*C. s. inornatus*) (fig. 44, nos. 34, 35). These birds lay very striking and beautiful eggs, and my figures faithfully portray them in all particulars save *color*. There is scarcely any difference between the eggs of the two species, judging from the sixteen specimens at hand, two sets of four eggs each for either bird. An average one will measure about  $2.13$  by  $1.53$ , the form of them being well shown in the figures. In ground color they run from a very pale greenish olive or pale buffy to a somewhat darker brownish-olive. For the most part they are speckled, spotted, blotched all over, sometimes being a little heavier at the butts. Some of the specks are exceedingly fine, almost requiring a lens to see them. In color, these markings are of various shades of brown, lilac, and umber, the dark brown spots sometimes overlying the lilac-gray ones. Of these four sets, the palest egg was laid by a Western Willet, and the darkest one by the eastern species (no. 37).

I do not happen to have at hand any eggs of either of our species of yellow-legs (*Totanus*), but I imagine they do not depart so very far from the Redshank (*Totanus calidris*) of Europe (fig. 42, nos. 18, 19), of which species I present the figures of two specimens, chosen from four sets of four eggs each. These show the form and size ( $1.70$  by  $1.20$ , Swann) of these eggs very well, while the color and markings exhibit very considerable variation. The ground color may be of a

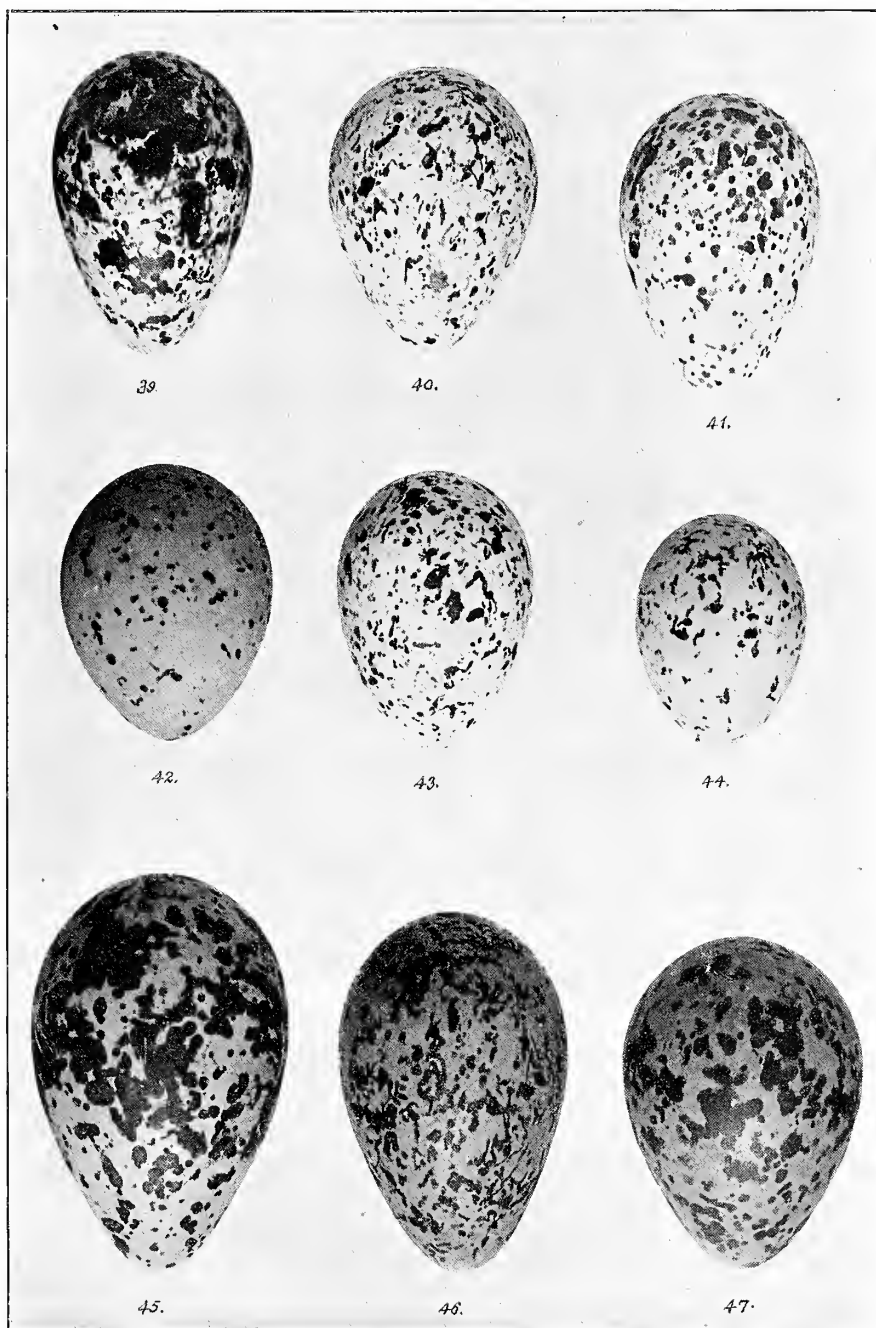


Fig. 45. Nos. 39-41, KILLDEER (*Oxyechus vociferus*); FROM THREE DIFFERENT SETS, OF THREE EGGS EACH. NO. 42, MOUNTAIN PLOVER (*Podasocys montanus*); FROM A SET OF THREE. NO. 43, WILSON PLOVER (*Ochthodromus wilsonius*); FROM A SET OF THREE. NO. 44, SNOWY PLOVER (*Aegialitis nivosa*); FROM A SET OF THREE. NO. 45, GOLDEN PLOVER (*Charadrius d. dominicus*); FROM A SET OF FOUR. NOS. 46 AND 47, BLACK-NECKED STILT (*Himantopus mexicanus*); FROM TWO DIFFERENT SETS, EACH OF FOUR EGGS. SLIGHTLY LESS THAN NATURAL SIZE.

pale greenish-olive, a pale buffy, or a clear, very light, clay color, which last may be darker by being uniformly tinged with light brown. For the most part they are spotted, speckled (often very finely), and blotched all over in the most remarkable way with dark vandyke brown, pale gray, and dull lilac. Sometimes the blotches of brown are nearly black, and become confluent as shown in no. 19.

Ridgway gives descriptions of the eggs of both our species of *Totanus*, but it is very difficult to tell about the appearance and form of birds' eggs unless we present good figures of them, correctly colored if possible.

Of the beautiful set of four eggs of the Ruff (*Machetes pugnax*) in this collection, I present, on fig. 42, three figures of them (nos. 20-22). They are of a rich olive-brown, rather dark, heavily blotched, and speckled nearly all over with dark brown markings of forms shown in the figures. Meagrely interspersed among these, we find some almost imperceptible spots of a pale lilac-gray. Strange to say, Swann does not describe in his "*Hand-book*" the eggs of the Ruff, perhaps for the reason that they are so well known to the collector. Coues, in his "*Key*" (5th ed. p. 837) likewise omitted their description, though possibly for a different reason. For them, according to Ridgway (*loc. cit.* p. 168), we have: "*Eggs* 1.71 by 1.20, light olive or olive-buff, spotted with vandyke brown or bistre," a description that would not correctly describe the set in this collection, though I doubt not it might apply to other specimens of Ruff's eggs. In some, the ground color is really a deep, rich olive, untinged by any brown shade, as was the case with the specimen shown in no. 21, and still more so in an unfigured one of this set.

Few, if any, of our sandpipers ever lay a handsomer egg than is laid by the well-known Spotted Sandpiper (*Actitis macularia*). Two specimens of these are given in nos. 15 and 16 of fig. 41, the exceptionally handsome one being given in no. 15. These eggs, that is, the set of four in which no. 15 belongs, are of a very pale greenish white (almost white), being spotted and blotched all over with blackish brown markings and with a few very faint lilac ones.

Another set of four (see no. 16) has the ground tint a very pale clay color, tinged with olive, the markings consisting of much finer blackish brown spots, flecks, and the minutest dottings imaginable. There are also a few faint, semi-concealed spots of a very pale purplish lilac, which would escape notice unless especially looked for by the observer.

Average examples of the eggs of the Long-billed Curlew (*Numenius americanus*) are reproduced in nos. 28-30 on fig. 43. There are twenty eggs of this species before me, equally divided into five sets. They vary to some extent in form, size, and color, and withal are not particularly handsome eggs, being dull in color, often with weak, undecided markings. Ridgway gives the ground color of the egg of this species as "light grayish buff or pale buffy brown"; while Coues ("*Key*" p. 842) comes nearer the mark when he says they are "clay-colored, tending either to darker olivaceous shades or to buff." All the specimens in this collection are either of a dark olivaceous, or a medium shade of that color. The markings are of various tints of brown, never very dark, and a few of a pale lilac. There is generally, but not always, a tendency for the heavier markings to be at the big end. They are both elongate and short pear-shaped (Coues, 2.45-2.80 by 1.80-1.90; Ridgway, 2.59 by 1.80).

The Whimbrel (*N. phaeopus*) lays eggs that are about one-third smaller than those of the Long-billed Curlew; the ground color is more of a clayey tint with less olive in it, and the dark brown markings are often massed and confined to

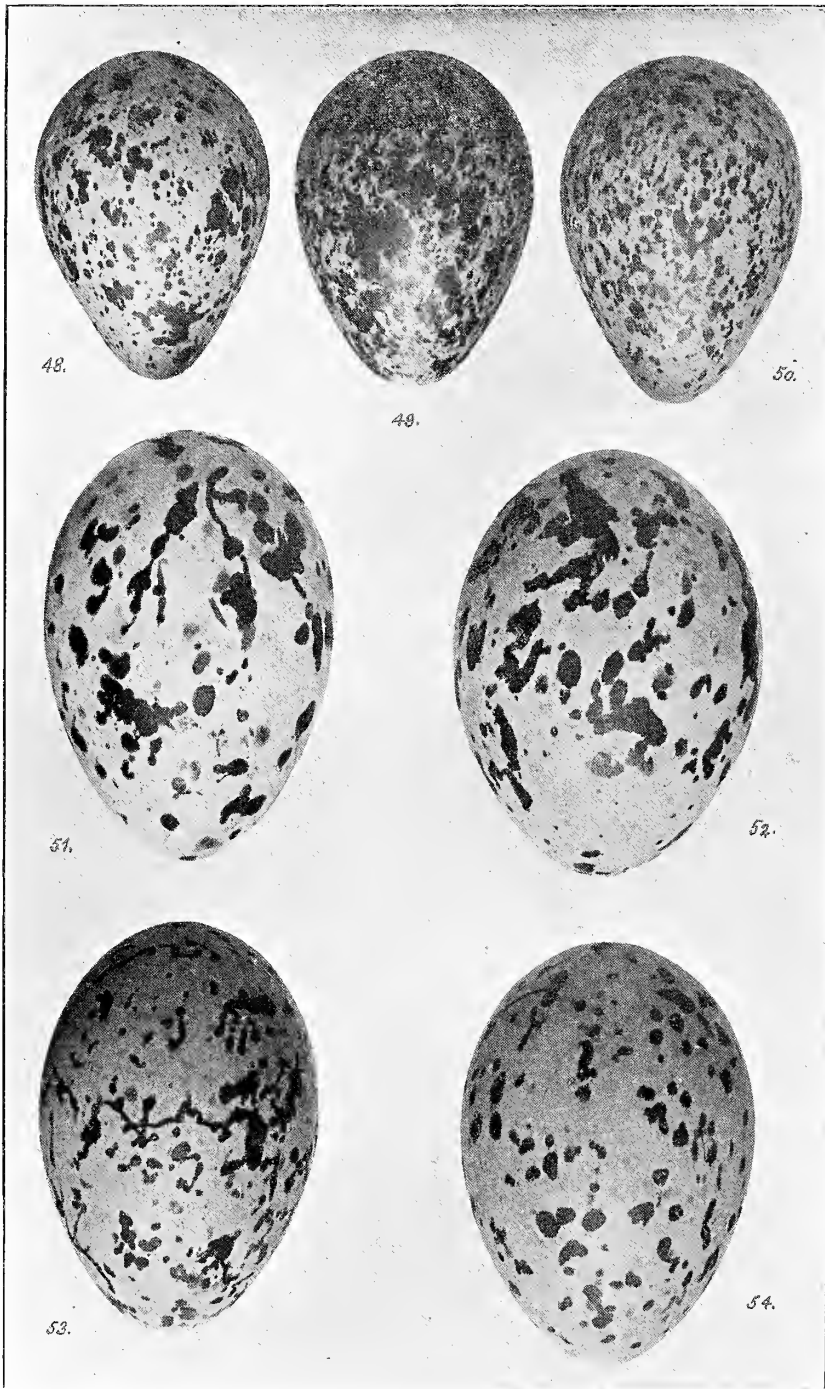


Fig. 46. NOS. 48-50, LAPWING (*Vanellus vanellus*); FROM THREE DIFFERENT SETS, OF FOUR EGGS EACH. NO. 51, BLACK OYSTER-CATCHER (*Hæmatopus bachmani*); FROM A SET OF THREE. NO. 52, OYSTER-CATCHER (*Hæmatopus palliatus*); FROM A SET OF TWO. NOS. 53 AND 54, EUROPEAN OYSTER-CATCHER (*Hæmatopus ostralegus*); FROM TWO DIFFERENT SETS, OF THREE EGGS EACH. SLIGHTLY LESS THAN NATURAL SIZE.

the butt; but in some specimens they are much finer and irregular, at the same time sparsely sprinkled over the egg (no. 27).

There are at hand two sets of eggs of four eggs each of the Whimbrel, and the markings in some of them are very heavy and large as compared with some of the others. Occasionally, we find at the butt of one of these eggs, about a third of the distance from the end, a scraggly line of black, as though it had been done with a pen. This point is interesting, as some oölogists have claimed that this marking is of an adventitious nature. It is also found in eggs of *N. americanus*, where a smaller mass of such scratchings may occur. Ridgway gives the size of the Whimbrel's egg as 2.39 by 1.66, and that is almost exactly the size of one in this collection.

Twenty-eight eggs of the Lapwing (*Vanellus vanellus*), or seven sets of four to the set, probably give a fair average for size, form and color of the eggs of this interesting plover, and this is the number of them before me at the present writing (fig. 46, nos. 48-50). It is a very handsome egg that *Vanellus* lays, ranging in ground color from a very deep clay-buff, to a rich buffy olive, finely or very coarsely marked all over with blotches or spots of all possible sizes and shapes of blackish-brown. In size they average 1.75 by 1.30.

A rival of that of the Lapwing is the egg of the Golden Plover (*Charadrius d. dominicus*). Judging from the set of four at hand, it is always larger, more elongate, and much lighter in ground color. The blotches, dots, and specks distributed all over the surface of any one of them are of a blackish-brown, almost black. Sometimes the bigger markings are congregated at the butt, but there is considerable variation in this matter. Average size 2.07 by 1.40 (Ridgway).

Even handsomer than those of either the Lapwing or the Golden Plover are the eggs of the Killdeer Plover (*Oxyechus vociferus*) (fig. 45, nos. 39-41), for they are of the palest possible clay color, and the markings, of a character as shown in the figures, are black, causing them to be most striking oölogical subjects. Size, 1.50 x 1.10.

To represent the eggs of the species composing the genus *Aegialitis*, those of the Snowy Plover (*A. nivosa*) have been chosen (fig. 45, no. 44), and they are very modest-looking little affairs, the collection containing three sets of three eggs to the set, all of which I have duly compared. Whether this is the usual clutch I am, at this writing, unable to state, and Ridgway does not commit himself on this point in his "Manual," while Coues says not a word about the eggs of this species of plover in his "Key" (5th ed. pp. 780, 781). They exhibit but very little variation in any particular, all being of a very pale, dull, buff-clay color, finely spotted, nearly all over, though not thickly, with blackish-brown spots and the finest kind of scraggly hair-lines. In some, the dots are coarser, and no hair-lines appear on the specimens, the markings being chiefly congregated at the big end, though not altogether so. No. 44 presents one of these eggs, nearly natural size.

The Wilson Plover (*Ochthodromus wilsonius*) (fig. 45, no. 43) also lays a very pale-colored, buffy tinted egg, more elongate than in the last species, but very similarly marked with blackish-brown irregular spots as shown in the figure. These are pretty evenly distributed all over the egg, and never of very large size.

The eggs, then, shown in nos. 40-44 are the general style and pattern of the smaller species of plovers; but we note a decided difference when we come to examine those of the Mountain Plover (*Podasocys montanus*) (fig. 45, no. 42). This egg is rounder, or rather less pyriform, than is usually the case among these

typical limicoline birds of the plover group. They are darker, being of a clear, olive-drab color, moderately dotted, chiefly over the larger half of the egg, with irregular black spots and fine little specks, lending to the surface a very delicate appearance on account of the elegant shade of the ground color. Size: 1.40-1.50 by 1.10 (Coues). "Varying from light olive to deep cream color, rather sparsely and irregularly speckled and lined with dark brown, black and purplish gray," is Ridgway's description of the eggs of this plover. He rarely states how many there are to the set in the case of any of these smaller pluvialine species; but they probably run from three to four in nearly all the species, if not in all.

All three of the species of oyster-catchers (*Hamatopus*) are to be found in Mr. Court's collection. They constitute a beautiful series of eggs, and examples of all of them are given on fig. 46 of this paper (nos. 51-54). As will be noted, they do not vary to any great extent; they run from a deep, dull, buffy shade to a creamy buff, with very pronounced, bold markings of big and little dots, blotches, fine specks, often coarse, scraggly lines and other irregular designs. These are pretty evenly distributed all over the eggs, and are very striking, being either dull black, vandyke brown or bistre, often with lighter spots of pale gray. The sets run from two to three, and, I believe, never four.

For our Oyster-catcher (*Hamatopus palliatus*) Coues ("Key," 5th ed., p. 789) gives the measurements as "about 2.20 by 1.55." Those of the European species (*H. ostralegus*) are smaller, and, in the case of the specimens at hand, darker. In a paper I published in the Report of the U. S. National Museum for 1892 (pp. 461-493) entitled "Comparative Oölogy of North American Birds," I said, when commenting on the study of the eggs of the *Limicola*, that the study of the oölogy of this group is important, for "perhaps the greatest scientific triumph of oölogists lies in their having fully appreciated the intimate alliance of the *Limicola* (the great group of snipes and plovers) with the *Gavia* (the gulls, terns, and other birds more distantly connected with them) before it was recognized by any professed taxonomist. L'Herminier, whose researches have been much overlooked, excepted; though to such an one was given the privilege of placing that affinity beyond cavil" (Huxley, P. Z. S., 1867, pp. 426, 456-458; cf. *Ibis*, 1868, p. 92) <sup>3</sup>.

The subject has, however, by no means been exhausted, and even our best reference "Keys" and "Manuals" are often derelict in the matter of giving any description at all of the eggs of the birds composing this important and interesting group.

## WITH THE BAND-TAILED PIGEON IN SAN DIEGO COUNTY

By LAURENCE M. HUEY

**I**N THE early summers during the past three years, extended camping trips have been made by the writer through the mountains of San Diego County, California, on which a good many interesting ornithological notes were taken. Among them are some in regard to the Band-tailed Pigeon (*Columba fasciata*), as observed in that region.

On June 21, 1910, while driving slowly up the grade among the trees that

3. Newton, Alfred, Article "Birds", Encyclopaedia Britannica, p. 773.

clothe the summit of the Palomar Mountains, near the northern boundary of San Diego County and about eighty miles from the coast, a Band-tailed Pigeon was flushed from a tree directly over the main road. On examination it was seen to have flown from the nest, and the single egg was plainly visible through the frail structure. The nest was saddled on a small fork of a horizontal limb of a black oak, thirty feet from the ground.

The bird did not fly directly away, but hesitated a moment over a near by tree, and then, as if by a sudden change of mind, made off like a bullet and was seen no more, although I remained there for some time. The egg was taken, but on trying to remove the nest it was reduced to a mere handful of twigs, being composed of not more than sixteen or eighteen sticks in all.

July 3, 1910, found me at Wynola, four miles east of Julian in the Cuyamaca Range. Some boys there told me that for the past two weeks a bunch of about one hundred Pigeons had been feeding on green manzanita berries in a near by thicket, and I was much pleased when they offered to take me to the place. It proved to be about one and one half miles north of their ranch, due south of Volcan Mountain, and was the only thicket thereabout having a large crop of berries. In the morning the birds would begin to arrive a little after sunrise, leaving between eight and nine o'clock; in the evening they returned about four and stayed until dark. They seemed always to come from, and return to, the same place, at the top of Volcan Mountain among the pine trees.

The Pigeons seen were apparently always the same bunch, as one bird noted with a few secondaries missing on the left wing was seen on three out of four occasions when the flock was encountered. It was interesting to watch them trying to alight on the clusters of berries, far too weak to support them, making many futile attempts, and finally succeeding in reaching the berries only by settling on a stronger perch and then walking out to the cluster. But how they did gorge and stuff when they finally got at them!

On two occasions birds alighted very near me, close enough to be heard and seen eating. Their table manners were extremely poor, reminding one very much of a chicken eating corn, accompanied by gulping noises when swallowing a berry. These ranged from the size of an average pea to that of a large hazel nut.

A few days later the boys brought me a fractured egg which they had taken from a Pigeon shot by them that evening. The shell, though not very thick, was rough to the touch, and the egg would probably have been laid the next morning.

July 6 found me camping near the foot of North Peak in the Cuyamaca Mountains, at a place called Talley's Ranch, and early on the morning of the 7th I was travelling via mule back to the summit. About two-thirds of the way up is located a small saw-mill, the owner living near by. I was talking to one of his children when my attention was called to a pair of captive Pigeons which proved to be the Band-tailed. On questioning the lad I learned that they had been taken about a week or ten days before, farther up the mountain, from a nest in an oak tree. One bird was much larger than the other, having gained the juvenal plumage, while the smaller one was still rather downy about the neck and head. Both did justice to any food stuffs offered them, and ate freely even of food offered by strangers, swallowing whole grains of corn and large pieces of bread.

I made my way to the summit but was unsuccessful in locating any more Pigeons, nor could I hear one coo, although I listened assiduously. Being much interested in the captive young ones I returned three days later with hopes of

purchasing them for pets, but was disappointed to find that the smaller one had been killed by being dropped out of the boy's hands while he was handling it. I was unable to purchase the other, but left with the boy's promise to turn it loose when it could care for itself.

In the Palomar Mountains a very young female Pigeon was collected on June 25, 1911. It was perched on an under branch of a large oak tree, and shot from horse-back with a "32 aux." This was the only one of the species observed that year.

At daybreak of June 9, 1912, while homeward bound from the Palomar Mountains, two Pigeons were heard fly from the top of a fir tree, where they apparently had been roosting. On reaching the valley below, many Pigeons were seen rapidly descending from the mountain to an over-ripened uncut wheat field, dropping down with swift flight, on semi-curved wings, and with an occasional flap at long intervals. One bird was also noticed eating berries from an elder bush, among a small flock of *Phainopeplas*.

## THE ALL-DAY TEST AT SANTA BARBARA

By W. LEON DAWSON

RUSSELL CONWELL'S long-famous lecture, "Acres of Diamonds," flashes a thousand scintillating lights upon the homely truth that opportunity lies close at hand. Twice has the writer listened to this brilliant discourse, yet apparently without having greatly profited thereby; for has he not allowed eight preceding seasons to pass by in the West without having put his ornithological resources to the "All-Day" test? That is, in the spring time. We have conducted several very gratifying winter tests, because we knew we had the Easterner on the hip there. But to venture an all-day in the spring, when the hedgerows of Nebraska, the groves of Ohio, and the very wayside weeds of New England are alive with birds, surely that were to invite disaster and to make one's beloved West ridiculous in the eyes of men. We have been so often told by the confident Easterner, "But you have no birds. I do not see them. They do not wake me up at three o'clock in the morning as they do in dear old Indiana," that we have assumed an apologetic air and tried to explain, rather lamely, that owing to the uniformity of weather conditions here our birds do not move in waves as they do in the East. And so we have long forborne to make the acid test of counting on a May day.

But having exhausted the bliss of ignorance, and having wearied of polite pity, the writer determined to know the worst. Besides, bird-horizoning is such exhilarating sport that no one who has really tasted the flavor of it can ever quite forget. It is more exciting than golf or polo or bridge (I suppose), because Nature plays the other hand; and Nature both shuffles and deals and her hands are never twice alike. One Hundred is the proper bid, and if you win less than that Nature has dealt you a poor hand. All that you get above that number not only feeds your *amour propre*, but justifies your local pride. And you win anyhow—health, happiness, and a very considerable increase in your knowledge of the birds. Of course it is an honor game. If you cheated, you would only cheat yourself. To fake records or to put down occurrences that you are not quite sure about brings its own punishment; namely, to become that kind of a man.

But to get back to our muttons. It is confessedly a dull year here in Santa Barbara. Migrations have been quite unostentatious. There has been nothing like the stir and hustle in movement that there was last year. Moreover, the day chosen, May 5, was a week too late for this latitude. With the exception of the *Limicola*, the migrant "hosts" were absolutely gone. Add to that a day severely handicapped by weather conditions, fog and wind, and you have a gloomy outlook for a record.

William Ornithologus, Jr. (Aet. 13), and his dad rose at 4 A. M. (our eastern brethren start at 2:30), yawned peevishly at the closely investing fog, noted a temperature of 49°, woke up the Jolly Ellen, who in turn coughed sulkily with the fog in her "pipes," and set out up Mission Canyon over an "automobiles forbidden" road to the mouth of the new water tunnel, which pierces the Santa Ynez range at an elevation of 1800 feet.

The first bird to peep is Anthony Towhee, at 4:37. House Finch follows at 4:41, and San Diego Towhee a minute later. By the time the tunnel is reached at 5:45, we have risen above the fog bank and have 27 species to our credit. Here we leave the machine and take to the trail which leads up through the dense chaparral, piercing cover which a week ago was swarming with migrant warblers and flycatchers. The fog-ocean rolls at our feet and we are monarchs of all we survey; but alas! it is a silent paradise. Not a single species is added for half an hour's work. Our guests are all gone. We plunge into the fog again and fight our way down into Mission Canyon for the sake of confronting a cliff which contains at one time and within the circuit of a flung hat, Cliff Swallow, Violet-green Swallow, White-throated Swift, Western Redtail, and Pacific Horned Owl, all nesting. Check, check, tally. All in. And a Nuttall Woodpecker just below for luck.

The cool depths of the Canyon yield nothing else new save two nestfuls of shivering baby Allen's; but we know we shall not see these elsewhere, and the extra half mile is worth while. Fog! Fog! We bless the fog for our beautiful cool summers, but it certainly does give one a slow start on a spring bird horizon. We are back home at 8 o'clock with only 39 species brought to book. (I have recorded 90 species in Ohio by the same hour—but wait!) Nevertheless we doggedly resume at 8:30. A *Phainopepla* frets in a neighbor's yard, and two kinds of Kingbirds, Cassin and Western, rise from the same fence rail.

The next objective point is Laguna Blanca on the Hope Ranch property, where I have seen fifty species of birds at one time on a winter's day; but need of gas and a road as smooth as a billiard table tempts us farther west,—first to Goleta and then to La Patera cat-tail swamp, where we pick up the three blackbirds and Cinnamon Teal, with Least Bittern for a plum.

At ten o'clock the fog burns off (as it always does), and we hurry back to reap a harvest at Laguna Blanca. Faugh! It is a watery desert. Coots, Ruddies and a few blackbirds comprise almost its entire population. These with a Sora and a passing Kingfisher—the latter a rare bird hereabouts, thanks to the jealous fisherman—scarcely reward us for our effort.

The City proper yields English Sparrow; and Stearn's Wharf, where we lunch, gives access to lingering Scoters, Shags and Gulls, much prized in a spring list. The Estero, usually crowded with birds, is almost deserted, and only a waif Phalarope redeems its sordid stretches from utter disappointment. On the beach opposite the outfall sewer sits a mixed company of gulls, always worth looking over. This time it is the Glaucous Gull (*Larus hyperboreus*) which commands attention. There are two individuals among the crowd of lesser Westerns, one

entirely white save for the black tip of the bill, which still marks the last stage preceding maturity, and the other with plumage of a dirty white cast. Still another of this species was seen later in the day on the beach near Carpinteria, some ten miles to the eastward.

The sandy stretch along the boulevard, where at least a thousand automobiles pass daily at this dull season and three thousand in the tourist season, yielded five new species; viz., Semipalmated Plover, Hudsonian Curlew, Forster Tern, Sanderling, and Snowy Plover—the last-named resident and breeding. But still we had only 87.

The fortunes of the day hinged upon the behavior of Sandylands, Mr. Stewart Edward White's waterfront stretch near Carpinteria. A line of sand dunes backed by a shallow lagoon and extended into a low spit, had usually treated us well; but there was no predicting this day, and the wind was blowing almost a gale. Belding Marsh Sparrow, California Brown Pelican, and Hyperonca Blue Heron were certainties, but Black-bellied Plovers and the Turnstones were more gracious materializations, while the Snowy Egret was a gem of generosity. This wary bird cherishes its skin more carefully than the Last of the Mohicans, and I verily believe he is the same one who showed up at this time last year.

We left at 4:30 P. M. with Squawk ranking as 99. A surly road boss spreading asphalt on the Summerland road intercepted our Santa Barbara-ward flight and sent us around by El Toro Canyon over a very Hades of bumps—thus losing us fifteen minutes of the precious daylight. If the list is one short it is the fault of that Plutonian taskmaster.

From Ortega Hill I scanned the sea and succeeded in locating a single Western Grebe, No. 100. Here is where I cheated the boy, quite unintentionally; for I monopolized the glasses until the Grebe was gone. So Master Will mourns that his list falls one short of his daddy's, for otherwise he checked up on every one.

So surely as you pass the hundred point, you get interested, enthusiastic, excited. You are making history and you know it. Every bird is a godsend, and you watch the descending sun like an anxious Joshua. Cedar Birds! Bless them! Forty plump bodies ranged on a telegraph wire by the roadside on purpose to be listed.

The Beale Estero, approached cautiously from the north side, yields Greater Yellowlegs, Spotted Sandpiper, and an able-bodied Pintail at one clip, while an Eared Grebe bobs up by the roadside as we cross the outlet, and it submits to a delighted scrutiny. All sail now for the Mission Hill! We know a bank where the wild Rufous-crowned Sparrow grows, and we'll make it by sundown or crack a cylinder. Or—by the way, Sonny, we flushed a Poorwill the other day from that field the other side of the new Normal School, didn't we? Well, we'll try for that, first. Poor Will wouldn't; but just as we were about to heave a very much aspirated sigh, "*click buzzzzzzz tsip*" came from a Western Grasshopper Sparrow. Delighted to meet you, Buzzy. Come again! Now up the winding road to Rufous-crowned Sparrowburg! And just as the lower limb of the sun plunged into the western sea, we silenced the motor and listened to the evening offering of the titled singer himself. Twice he held forth in those exquisite sweet strains and then plunged into the thicket for the night.

Our work was done at 6:37, and the Jolly Ellen rolled her soft shoes homeward to her dreamless stall. The record was 107, although we still had hopes; not vain ones either, for at eight o'clock when we came forth from dinner to test the

air, *Otus asio bendirei*, our neighborhood pet, quavered a benediction and was duly enrolled as Number 108.

In the following list, arranged in the order of Pacific Coast Avifauna Number 8, I have forbore to give scientific names in order not to burden bibliography overmuch nor to try needlessly the patience of our long-suffering editor. Bird-horizoning is, confessedly, a "popular" exercise. Its judgments are snap judgments, and so are liable to a certain percentage of error. What that percentage may be depends, of course, upon the observer; upon his familiarity with field recognition marks, especially bird notes; his knowledge of the locality traversed and its ordinary and accredited bird population; and, most of all, upon his conscientiousness and general sobriety of judgment. Given such qualifications in any reasonable degree, and no other fair-minded worker can afford to ignore the testimony of such a list or dispute the value of bird horizons. To do so (and some have done it) [not the editor] is to show the captious and hypercritical spirit which strains out gnats of subspecific inquiry and swallows camels of generic ignorance.

In the following list, for example, I will guarantee the specific validity of every record save Arizona Hooded Oriole (bird not seen and I have not yet had the coveted opportunity to compare the scolding notes of *cucullatus nelsoni* and *bullocki* directly), Pied-billed Grebe (bird not *well* seen), Red-breasted Merganser (female, might have been the rarer *americanus*), and Herring Gull (flying bird, might have been a bleached example of *occidentalis*, or a hybrid such as occurs off the Washington Coast); and the subspecific validity of all save California (?) Yellow Warbler and Pileolated Warbler, both of which were recorded by notes only. There! That clears my conscience. How does it strike yours? To quote or not to quote, that is the question. Oh, by the way, we *did* have a gun, and we did "take" California Purple Finch and Forster Tern. Next!

Western Grebe	1	Sanderling	20	Western Wood Pewee	8
Eared Grebe	1	Greater Yellowlegs	1	Western Flycatcher	6
Pied-billed Grebe	1	Spotted Sandpiper	1	Black Phoebe	1
California Brown Pelican	30	Hudsonian Curlew	60	Cassin Kingbird	2
Farallon Cormorant	40	Black-bellied Plover	3	Western Kingbird	4
Brandt Cormorant	20	Killdeer	7	California Horned Lark	8
Least Bittern	1	Semipalmated Plover	20	Russet-backed Thrush	2
Hyperonca Blue Heron	3	Snowy Plover	60	Western Bluebird	1
Snowy Egret	1	Ruddy Turnstone	1	Pasadena Thrasher	1
Black-crowned Night Heron	8	Black Turnstone	3	Western Mockingbird	3
Red-breasted Merganser	1	Glaucous Gull	3	San Diego Wren	2
Cinnamon Teal	10	Western Gull	80	Western House Wren	4
Shoveller	40	Herring Gull	1	Pallid Wren Tit	20
Pintail	1	Bonaparte Gull	200	Western Martin	3
White-winged Scoter	20	Forster Tern	120	Cliff Swallow	200
Surf Scoter	20	Western Mourning Dove	12	Rough-winged Swallow	2
Ruddy Duck	15	Belted Kingfisher	1	Bank Swallow	100
Turkey Vulture	20	California Screech Owl	1	Barn Swallow	1
Sparrow Hawk	1	Pacific Horned Owl	1	Northern Violet-green Swallow	4
Western Red-tailed Hawk	1	Allen Hummingbird	4	Cedar Waxwing	40
Valley Quail	20	Anna Hummingbird	10	Phainopepla	6
Sora Rail	1	Black-chinned Hummingbird	20	Western Warbling Vireo	40
Coot	60	White-throated Swift	6	Hutton Vireo	10
Northern Phalarope	1	Nuttall Woodpecker	1	Plain Titmouse	2
Least Sandpiper	200	California Woodpecker	12	Coast Bush-Tit	20
Red-backed Sandpiper	30	Red-shafted Flicker	6	California Jay	6
Western Sandpiper	500	Olive-sided Flycatcher	2	Lutescent Warbler	4

California Yellow Warbler	6	Willow Goldfinch	20	Rufous-crowned Sparrow	1
Tule Yellow-throat	6	Green-backed Goldfinch	80	Western Chipping Sparrow	3
Golden Pileolated Warbler	3	Lawrence Goldfinch	2	San Diego Song Sparrow	20
Western Tanager	1	California Purple Finch	2	Spurred Towhee	6
Brewer Blackbird	80	California Linnet	500	Anthony Brown Towhee	40
Arizona Hooded Oriole	2	Western Lark Sparrow	22	Lazuli Bunting	20
Tricolored Redwing	1000	Western Savanna Sparrow	1	Pacific Black-headed Grosbeak	40
San Diego Redwing	100	Belding Marsh Sparrow	20	English Sparrow	4
Yellow-headed Blackbird	4	Western Grasshopper Sparrow	1		
Western Meadowlark	8				

It will be readily seen that the most significant feature of the day's horizon is the almost total lack of migrants save for the *Limicolæ*. The 108 birds seen fall into six categories. (1) Migrating *Limicolæ*: all save Snowy Plover and Killdeer. (2) Other migrants: Bonaparte Gulls, Forster Terns, and Western Tanagers alone. (3) Breeding birds: constituting the bulk of the horizon, probably 80 species. (4) Left-overs: immature, decrepit and non-breeding birds, such as the two Scoters, Glaucous and Herring Gulls, Red-breasted Merganser, Western Grebe, Pintail and, possibly, Shovellers. (5) Waifs: isolated migrants lost from the main host or wandering aimlessly for lack of company, typified by Snowy Heron and Northern Phalarope. (6) Visitors from distant breeding haunts, as the two Cormorants and California Brown Pelican.

The following species were observed within the general region traversed above during the week preceding the test; viz., April 28-May 4.

Loon	Long-billed Dowitcher (A. B. H.)	Rufous Hummingbird
Pacific Loon	Knot	Vaux Swift
Anthony Green Heron	Baird Sandpiper	Willow Woodpecker
Green-winged Teal	Wandering Tattler (A. B. H.)	Wright Flycatcher
Prairie Falcon	Surf-bird (A. B. H.)	Ash-throated Flycatcher
White-tailed Kite	Parasitic Jaeger	American Pipit
Sharp-shinned Hawk	California Gull	Tule Wren
Cooper Hawk	Road-runner	Dotted Canyon Wren
Light-footed Rail	Barn Owl	Blue-fronted Jay
Wilson Phalarope (A. B. Howell)		Calaveras Warbler
		Black-throated Gray Warbler

The following species not observed on May 5 were almost certainly resident at that time within the area traversed.

Bittern	California Pigmy Owl	Common Rock Wren
Burrowing Owl	Dusky Poorwill	Western Gnatcatcher

This gives, on a very conservative basis, a grand total of 144 species present within eight days, a modest number which I venture to predict will be recorded eventually in a single day from some California point. As contrasted with the abundance of last year, I need only mention that upon the 29th of April, 1912, we had twelve species of warblers upon our little acre at Los Colibris at one time; whereas the list of May 5, 1913, contains only four warblers. Moreover, there were eight species of warblers still present on the 7th of May last year.

The world's record "horizon" of 144 species was taken on the 13th day of May, 1907, by Professor Lynds Jones and two other observers near Oberlin, Ohio. They traversed a range of country absolutely more extensive (using the trolley to effect a change of base of thirty miles), as well as ecologically more varied. The Oberlin list boasts twenty-nine species of warblers and thirty water- and shore-birds, as compared with our four warblers and thirty-eight water- and shore-birds. Bearing the warbler bonus in mind, therefore, and the not great

discrepancy in the numbers of water- and shore-birds, I believe California may, in a favorable season, safely cross friendly foils with that most favored and deservedly famous home of the bird horizon, Oberlin.

## FROM FIELD AND STUDY

**The Status of the Gambel Quail in Colorado.**—In view of the known facts regarding the status of the Gambel Quail in Colorado, I hesitate to believe that it was Mr. L. J. Hersey's intention to convey the impression that the specimens taken in the Uncompahgre valley extended the natural range of these birds 100 to 120 miles north of that given by Cooke and Sclater (see *CONDOR* xv, 1913, p. 93). Those unfamiliar with the following facts, however, might be misled into that belief.

Notwithstanding the extensive work that has been done on the birds of Colorado, the quail of the western slope have remained unidentified since their introduction there, more than twenty-five years ago, the broad term "California quail" having been accepted without question. Being assured of the mistake in their identity at the time the specimens referred to by Mr. Hersey were taken I began an investigation with a view of determining the facts concerning their presence.

About 1885 or 1886 twenty-five interested gentlemen secured nearly one thousand "California quail," which they liberated "at or near Montrose," Montrose County (according to the official records of Montrose County), and not at Grand Junction, Mesa County, as given by all the literature on the subject. The names of the gentlemen were secured from the records and much correspondence followed, but it failed to produce the slightest evidence as to the locality from which the birds had been obtained, until I was finally referred to Mr. J. D. Heard, of Los Angeles. Mr. Heard's reply to inquiries is as follows: "I am in receipt of your valued favor of March 6th and in answer beg leave to say that if my memory serves me right the quail shipped to Colorado twenty-five years ago were trapped at or near Fresno, California." I am not acquainted with Mr. Heard's connection with the shipment, but it is evident that if he is not mistaken *californica* occurs, or has occurred, in this state. Two gentlemen directly interested, old residents of the region, agree that the introduction was highly successful from the first, yet efforts have failed to disclose the slightest trace of *Lophortyx californica* in either Montrose, Mesa or Delta counties. There would therefore seem no reason for believing they were there, other than through the long acceptance of a mere term.

Gambel Quail are extremely abundant, and since the birds recorded by Mr. Hersey were taken within ten miles of the original point of introduction, it is not unnatural to suppose that they originated from that source. Certainly, there is no evidence whatever of their presence being due to natural causes.

Mr. Hersey's reference to Sclater's proof concerning the records of *gambeli* taken south of Old Fort Lewis is very interesting; and altogether, until further evidence is at hand, it seems apparent that *Lophortyx gambeli* has no rightful place in the list of native Colorado birds.—J. D. FIGGINS.

**Pelagic Wanderers.**—On the night of December 8, 1912, while on a vessel about 700 miles southwesterly from San Francisco, a white-rumped petrel came aboard and was secured by the writer. It measures as follows: wing, 6.15; tail, 3.33; bill, .62. These measurements would seem to indicate that this specimen is the Leach Petrel (*Oceanodroma leucorhoa*.)

On April 8, 1913, while on shipboard about 750 miles southwesterly from San Francisco, two Laysan Albatrosses (*Diomedea immutabilis*) were noted. They were first seen about 11 A. M. and they were still following the ship at dark, at which time we were about 600 miles out from the California coast. At daylight the next morning they had disappeared, and were not further seen.—G. WILLETT.

**Scott Oriole** (*Icterus parisorum*) at Santa Barbara.—A young male of this species sang so loudly from a neighboring sycamore tree on the morning of May 7 that he roused me from slumber, although I especially provide against such nonsense by sleeping with a pillow plastered over my ear. The bird challenged several times and then departed down Mission Creek; whither I followed after a hasty toilet, to overtake him an hour later. Mr. George L. Hamlin prepared the skin, and he told me that he had been in pursuit of this same bird in the Oak Park section for a week.—WILLIAM LEON DAWSON.

# THE CONDOR

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## EDITORIAL NOTES AND NEWS

The Los Angeles Museum of History, Science and Art has recently received from Mr. G. Allan Hancock, owner of the La Brea Ranch, the exclusive right, for the next two years, to exploit the exceedingly valuable and interesting deposits of fossils found upon that estate. CONDOR readers will recall the various publications of Dr. Loye Holmes Miller dealing with the birds discovered in these tar beds in the excavations of the University of California. In the new work now under way, begun early in July, a fair proportion of bird remains has been found among the more abundant large mammals, though so far of no species not already recorded by Miller.

Mr. G. Willett, under the auspices of the Biological Survey, spent two weeks during June in the vicinity of Roosevelt, Arizona, studying conditions on the bird reservation at that point. After a brief stay in Los Angeles he then departed for Puget Sound on a similar mission. From there he goes north to inspect certain of the Federal bird reservations in Alaska.

A letter was recently received from Joseph Dixon, who is a member of an expedition to Alaska in the interests of the Museum of Comparative Zoology at Harvard. It is dated at Dutch Harbor, April 24, and contains much of interest, especially as bearing upon the conditions under which zoological collecting is carried on in that region.

"We are too early for stuff on this side, and have had beastly weather all the time, either blowing fifty to seventy miles outside, or snowing so that we couldn't feel our way when we got close inshore. . . . We have quite a series of song sparrows, rosy finches, and snowflakes, and about fifteen ptarmigan. Willow Ptarmigan were still in the winter plumage at Glacier Bay and very wild, so that we did not get any. Rock Ptarmigan . . . were very plentiful (I saw about 200 in half an hour) just back of Muir's old cabin at Glacier Bay . . . I saw more ptarmigan in two minutes than I saw in the other two trips to Alaska. We could not get within ten miles of this place in 1907. There was scarcely any ice in the bay at all this time.

" . . . From a collector's standpoint we will be restricted in several ways. Our stops will be uncertain as to length on account of wind and weather, and we will not know if we can set traps or not, . . . but on the whole we are getting our share of stuff, and although cramped on board the boat, we have more than our share of space.

" . . . The official photographer has the worst time. His films rub when developing, and plates freeze solid in the pan when he washes them on deck. He has some good films now, taken with the moving picture camera.

" . . . We expect to leave here for Bogoslof Island tomorrow. We had a fine view of a smoking volcano on Unimak Island as we came by yesterday. . . . We are planning to fix up a drying screen in the galley, as our chests are full."

The fact disclosed in the last sentence is evidence of results, however unfavorable the conditions!

As we go to press the sad news reaches us of the death of Henry B. Kaeding, one of our oldest members. Mr. Kaeding passed away in Los Angeles early in June. A more extended notice will appear in an early issue.

## PUBLICATIONS REVIEWED

THE PRACTICAL VALUE OF BIRDS. By Junius Henderson (University of Colorado Bulletin, vol. 13, no. 4, 1913, pp. 1-48).

Most of us are apt to discount a publication which contains no original work beyond that of compilation. Yet the attractive paper at hand entitled "The practical value of birds" by Junius Henderson, Professor of Natural History and Curator of the Museum in the University of Colorado, presents so many admirable features that all such criticism is fore-stalled.

After the continued use of the word "economic" in publications of this kind the word "practical" found in the title is an acceptable

variation. The emphasis on the aesthetic in the very first paragraph: "Whatever tends to make the world happier and better is of direct material value though its value may not be measurable in dollars", is a little out of the ordinary for a purely economic paper, but is a good innovation. The many papers now being published dealing with the purely economic point of view have a tendency to over-emphasize the "dollars and cents value" at the expense of other values.

The introductory divisions of the bulletin treat of the usual subjects to be found in papers of its kind: The Balance of Nature, Rescue of Crops, Foliage and Forests by Birds; and Necessity of Protection. Two divisions a little more out of the ordinary are entitled: Quantities of Food Required by Birds, and Methods of Investigation.

The systematic discussion makes up the greater part of the paper. A general discussion of the food of the more important groups (orders) of birds is given with more detailed results of the stomach examination of the most important members of each group.

Two things are noticeable in this discussion. First, the numerous citations of the literature quoted (208 in all), and second, the tables (ten of them) summarizing the results of the stomach examinations made by different investigators. A few paragraphs on the literature of economic ornithology and a bibliography of one hundred and forty-nine papers on economic ornithology concludes the bulletin.

We recommend this paper as being the best brief summary on the subject which has come to our notice. No more valuable bulletin is available for the teacher who desires to know something of the economic relations of our common birds and the available literature on the subject, or for the beginning student in economic ornithology who desires a general idea of the work accomplished.—H. C. BRYANT.

## MINUTES OF COOPER CLUB MEETINGS

### SOUTHERN DIVISION

MAY.—The regular meeting of the Southern Division of the Club was held at the Museum of History, Science and Art, Thursday evening, May 29, with twelve members present: Messrs. Chambers, Daggett, Fitzpatrick, Howell, Hubbs, Kimball, Law, Layne, Miller, Rich, Willett, and Swarth. President J. E. Law was in the chair.

The following were elected to membership: H. C. Ohl, Los Banos, California; Thomas Trenor, San Francisco, California; E. P. Rankin, El Monte, California; George F.

Sykcs, Corvallis, Oregon. New names proposed were: L. H. Duschak, San Francisco, presented by J. Grinnell; Philip Pierpont, Nordhoff, by D. R. Dickey; George H. Stuart, Philadelphia, by W. L. Chambers.

A letter was read, received by W. L. Chambers from Mr. Robert Ridgway, giving many interesting details in regard to the publication of his new book of colors. Mr. Law entertained the members with an account of his recent collecting trip to southeastern Arizona. Adjourned.—H. S. SWARTH, *Secretary*.

JUNE.—The monthly meeting of the Southern Division of the Club was held at the Museum of History, Science and Art, Thursday evening, June 26, with the following members present: Messrs. Bryant, Chambers, Daggett, Fischer, Hubbs, Law, Zahn, and Swarth. Mr. Paul S. Radir and Mr. Carruthers were visitors. As the president was absent during the early part of the evening Mr. Zahn took the chair. The minutes of the May meeting were read and approved. The following were elected to membership in the club: L. H. Duschak, San Francisco; George H. Stuart, Philadelphia; Philip Pierpont, Nordhoff, California.

Mr. Bryant spoke at some length regarding the activities of the Conservation Committee during the session of the State Legislature just ended, summarizing the final results, and considerable discussion followed. Mr. Bryant then entertained the meeting with an account of some of the methods followed in an economic study of the food of birds. Adjourned.—H. S. SWARTH, *Secretary*.

## DIRECTORY OF MEMBERS OF THE COOPER ORNITHOLOGICAL CLUB

Revised to July 1, 1913

(Residence in California unless otherwise stated. Year following address indicates date of election.)

### HONORARY MEMBERS

Allen, Dr. J. A., American Museum of Natural History, New York, N. Y. 1910.  
Beal, Prof. F. E. L., Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1910.  
Belding, Lyman, Stockton. 1896.  
Merriam, Dr. C. Hart, 1919 16th St., Washington, D. C. 1909.  
Ridgway, Robert, Route 7, Olney, Ill. 1905.  
Stephens, Frank, 3756 Park Blvd., San Diego. 1912.

### ACTIVE MEMBERS

Adams, Ernest, 298 S. 11th St., San Jose. 1896.  
Alexander, Annie M., Seaview and Union Aves., Piedmont. 1908.

- Allen, Arthur A., 115 Stewart Ave., Ithaca, N. Y. 1911.
- Anderson, Malcolm P., Menlo Park. 1901.
- Appleton, J. S., Simi, Ventura Co. 1901.
- Arnold, B. W., 465 State St., Albany, N. Y. 1910.
- Arnold, E., Freight Claim Agt., Grand Trunk Ry., Montreal, Quebec. 1910.
- Arnold, Ralph, 917 Union Oil Bldg., Los Angeles. 1893.
- Arnold, W. W., 504 N. Nevada Ave., Colorado Springs, Colo. 1911.
- Atkinson, W. L., 28 E. Santa Clara St., San Jose. 1901.
- Atsatt, Sarah R., 1207 W. 5th St., Los Angeles. 1911.
- Bade, Wm. F., 2616 College Ave., Berkeley. 1903.
- Bagley, J., Box 46, Eureka. 1913.
- Bailey, Bernard, Corvallis, Montana. 1911.
- Bailey, Florence Merriam, 1834 Kalorama Rd., Washington, D. C. 1910.
- Bailey, H. H., Box 154, Newport News, Va. 1903.
- Bailey, Vernon, 1834 Kalorama Rd., Washington, D. C. 1904.
- Bales, Dr. B. R., 151 W. Main St., Circleville, Ohio. 1906.
- Bangs, Outram, Museum of Comparative Zoology, Cambridge, Mass. 1910.
- Barbour, Rev. Robert, Y. M. C. A., Montclair, N. J. 1911.
- Barnes, R. Magoon, Lacon, Ill. 1908.
- Barrows, Albert L., 1430 Arch St., Berkeley. 1912.
- Barrows, Prof. Walter B., Box 183, East Lansing, Mich. 1909.
- Batchelder, Chas. F., 7 Kirkland St., Cambridge, Mass. 1910.
- Baynard, Oscar E., Clearwater, Fla. 1911.
- Beck, Rollo H., R. D. 21, San Jose. 1894.
- Beckman, Orland, Sespe, Ventura Co. 1911.
- Beers, Henry W., 91 Denver Ave., Bridgeport, Conn. 1910.
- Bell, W. B., Agricultural College, N. D. 1912.
- Bennett, R. H., Room 409, 444 Market St., San Francisco. 1909.
- Bent, A. C., Taunton, Mass. 1909.
- Bicknell, Mrs. F. T., 419 N. Broadway, Los Angeles. 1913.
- Bigelow, Homer L., Old Orchard Rd., Chestnut Hill, Mass. 1910.
- Bishop, Dr. Louis B., 356 Orange St., New Haven, Conn. 1904.
- Blain, Merrill W., 1026 N. Coronado St., Los Angeles. 1909.
- Blayne, Nita A., 920 O St., Fresno. 1911.
- Bliss, J. G., 2148 B, Clinton Ave., Alameda. 1908.
- Bohlman, Herman T., 202 Occident St., Portland, Oregon. 1903.
- Bolander, L. P., Jr., 2517 21st Ave., Oakland. 1907.
- Bowdish, B. S., Demarest, N. J. 1910.
- Bowles, Chas. W., 1325 Lincoln Way, San Francisco. 1903.
- Bowles, J. H., "The Woodstock", Tacoma, Wash. 1903.
- Boyce, John J., Box 280, San Francisco. 1910.
- Boyer, Edgar, Tyro, Kansas. 1911.
- Braislin, Wm. C., M.D., 556 Washington Ave., Brooklyn, N. Y. 1910.
- Brandreth, Courtney, Ossining, N. Y. 1911.
- Brauer, W. G., Silver Lake. 1911.
- Brewster, William, 145 Brattle St., Cambridge, Mass. 1904.
- Brooks, Allan, Okanogan Landing, B. C., Canada. 1906.
- Brown, C. Emerson, Boston Society of Natural History, Boston, Mass. 1911.
- Brown, D. E., Room 11, Federal Bldg., Tacoma, Wash. 1909.
- Brown, Dudley H., 166 Parnassus Ave., San Francisco. 1911.
- Brown, Wm. J., 250 Oliver St., Westmount, Quebec, Canada. 1911.
- Brown, W. W., Jr., 76 Atlantic Ave., Long Beach. 1909.
- Bryant, Harold C., Museum of Vertebrate Zoology, University of California, Berkeley. 1910.
- Buckland, Hon. James, Royal Colonial Inst., Northumberland Ave., London, England. 1912.
- Burnett, W. L., Box 691, Ft. Collins, Colo. 1910.
- Burnham, Dr. Clark, Bushnell Place, Berkeley. 1907.
- Burnham, Mrs. Clark, Bushnell Place, Berkeley. 1907.
- Burns, Frank L., Berwyn, Pa., 1909.
- Burt, H. C., Monolith, Kern Co. 1910.
- Burtch, Verdi, Branchport, N. Y. 1910.
- Buturlin, Sergius A., Wessenberg, Esthonia, Russia. 1909.
- Caduc, Eugene E., 563 Massachusetts Ave., Boston, Mass. 1911.
- Camp, Chas., 2250 Telegraph Ave., Berkeley. 1909.
- Carpenter, Nelson K., Box 127, Escondido. 1901.
- Carriger, Henry W., 5185 Trask Ave., Oakland. 1895.
- Carriker, M. A., Jr., Cincinnati Coffee Co., Santa Marta, Colombia, South America. 1911.
- Case, Rev. Bert F., R. D. 2, Ferndale, Wash. 1913.
- Case, C. M., 7 Holcomb St., Hartford, Conn. 1911.
- Chamberlain, C. W., 36 Lincoln St., Boston, Mass. 1912.

- Chamberlain, W. J., 331 N. 5th St., Corvallis, Oregon.
- Chambers, W. Lee, R. D. 1, Box 73 D, Los Angeles. 1897.
- Chandler, Asa C., Maplewood, N. J. 1912.
- Chapman, Frank M., American Museum of Natural History, New York, N. Y. 1903.
- Childs, John Lewis, Floral Park, N. Y. 1904.
- Clark, Josiah H., 238 Broadway, Paterson, N. J. 1910.
- Clarke, Frank C., 218 East Hall, University of California, Berkeley. 1912.
- Clay, C. Irvin, Box 353, Eureka. 1910.
- Clifton, H. T., 509 E. Walnut St., Pasadena. 1904.
- Coale, Henry K., Highland Park, Ill. 1907.
- Coffin, Sherwood, 35 2nd St., San Francisco. 1911.
- Coggins, Herbert L., 776 Mission St., San Francisco. 1910.
- Cohen, Donald A., Alameda. 1894.
- Colburn, A. E., 806 S. Broadway, Los Angeles. 1905.
- Cooke, Wells W., Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1911.
- Cookman, Alfred, 956 Elm Ave., Long Beach. 1912.
- Cooper, James S., 830 53rd St., Oakland. 1903.
- Craven, Jesse T., 811 Roosevelt Ave., Detroit, Mich. 1909.
- Crosby, Maunsell S., Grasmere Farms, Rhinebeck, N. Y. 1911.
- Currier, Ed. S., P. O. Drawer 21, St. Johns, Multonomah Co., Oregon. 1904.
- Daggett, Frank S., 2833 Menlo Ave., Los Angeles. 1895.
- Darlington, E. J., 1111 West St., Wilmington, Delaware. 1911.
- Davenport, Mrs. Elizabeth B., Lindenhurst, Brattleboro, Vermont. 1911.
- Davis, Evan, Orange. 1894.
- Davis, J. M., 811 O St., Eureka. 1908.
- Dawson, W. Leon, R. D. 3, Box 83, Santa Barbara. 1906.
- Day, Chester S., 15 Chilton Road, West Roxbury, Mass. 1910.
- Dean, W. F., Three Rivers. 1901.
- Deane, Ruthven, 135 Adams St., Chicago, Illinois. 1904.
- Deane, Walter, 29 Brewster St., Cambridge, Mass. 1907.
- Dearborn, Ned, Linden, Maryland. 1909.
- Dial, Dr. E. A., 466 E. 32nd St., Los Angeles. 1913.
- Dickey, Donald R., Box 701, Pasadena. 1910.
- Dickey, Samuel S., 31 S. West St., Waynesburg, Pa. 1911.
- Dille, F. M., 2927 W. 28th Ave., Denver, Colo. 1903.
- Dixon, Joseph, Escondido. 1904.
- Douglas, J. S., Bin 7, Bakersfield. 1911.
- DuBois, Alexander Dawes, 327 S. Glenwood Ave., Springfield, Ill. 1911.
- Dunbar, W. Linfred, care of Remington Arms Co., Bridgeport, Conn. 1911.
- Duprey, H. F., Dixon. 1907.
- Durfee, Owen, Box 125, Fall River, Mass. 1911.
- Duschak, L. H., 506 U. S. Custom House, San Francisco. 1913.
- Dutcher, Wm., 990 Central Ave., Plainfield, N. J. 1905.
- Dwight, Dr. Jonathan, Jr., 134 W. 71st St., New York, N. Y. 1904.
- Earle, Miss Eleanor P., Palma Sola, Manatee Co., Florida. 1911.
- Eastgate, Alf., Tohia, North Dakota. 1913.
- Eastman, Lieut. F. B., Plattsburg Barracks, N. Y. 1904.
- Edson, J. M., Marietta Road, Bellingham, Wash. 1911.
- Esterly, C. O., Occidental College, Los Angeles. 1908.
- Everett, E. E., Ventura. 1913.
- Evermann, Barton W., Bureau of Fisheries, Washington, D. C. 1911.
- Finley, Wm. L., 651 East Madison St., Portland, Oregon. 1900.
- Fischer, E. J., 525 W. 57th St., Los Angeles. 1910.
- Fisher, Dr. A. K., Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1904.
- Fisher, Miss Elizabeth W., 2222 Spruce St., Philadelphia, Pa. 1910.
- Fisher, Dr. Walter K., Box 373, Palo Alto. 1900.
- Fitzpatrick, T. J., General Delivery, Los Angeles. 1913.
- Flanagan, John H., 153 Power St., Providence, R. I. 1904.
- Fleming, J. H., 267 Rusholme Road, Toronto, Ontario, Canada. 1910.
- Flint, Wm. R., R. F. D. 1, Box 221 C, Pasadena. 1912.
- Forrest, E. R., 261 Locust Ave, Washington, Pa. 1910.
- Fortiner, J. C., Brawley. 1910.
- Fowler, Frederick H., 221 Kingsley Ave., Palo Alto. 1901.
- Fox, Mrs. L. L., Los Olivos, Santa Barbara Co. 1911.
- Frazier, J. F., Independence, Mo. 1911.
- Fuertes, Louis A., Cornell Heights, Ithaca, N. Y. 1904.
- Gage, Miss Mabel C., care of Smith, Gage and Dresser, Worcester, Mass. 1913.
- Gane, Henry Stewart, Long Beach, Pacific Co., Wash. 1903.
- Gardner, Leon L., Claremont. 1911.
- Gault, Benj. T., Glen Ellyn, Ill. 1905.
- Gay, Harold S., 200 S. Wilson Ave., Alhambra. 1901.

- Gee, Wilson P., 2606 Bancroft Way, Berkeley. 1912.
- Gilman, M. French, Sacaton, Arizona. 1901.
- Goldman, E. A., Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1901.
- Goldman, Luther J., Orosi. 1908.
- Goodwin, Rev. S. H., Box 284, Provo, Utah. 1910.
- Gould, Jos. E., 5 Clifton St., Norfolk, Va. 1909.
- Grant, U. S., 4th, Box 113, Cambridge, Mass. 1909.
- Grey, Henry, R. D. 2, Box 154 A, San Diego. 1901.
- Grinnell, Mrs. Hilda Wood, 2543 Durant Ave., Berkeley. 1912.
- Grinnell, Joseph, Museum of Vertebrate Zoology, University of California, Berkeley. 1894.
- Guion, Geo. Seth, Napoleonville, La. 1911.
- Halladay, Daniel S., 1609 N. Main St., Santa Ana. 1910.
- Hanford, Forrest, Santa Maria. 1912.
- Hann, H. H., Parkdale, Oregon. 1909.
- Hanna, Wilson C., Box 146, Colton. 1902.
- Harmon, Mrs. Frances M., Marlborough School, Los Angeles. 1912.
- Harris, R. Park, care of Wm. Wood, Renton, Wash. 1909.
- Hathaway, Harry S., Box 1466, Providence, R. I. 1912.
- Hawver, Dr. J. C., Box 214, Auburn. 1909.
- Hazard, R. G., Peace Dale, R. I. 1909.
- Head, Miss Anna, 2730 Belrose Ave., Berkeley. 1912.
- Heinemann, Oluf J., 1662 Grove St., San Francisco. 1908.
- Heller, Edmund, U. S. National Museum, Washington, D. C. 1894.
- Helme, Arthur H., Miller Place, Suffolk Co., N. Y. 1911.
- Henderson, Hon. Junius, Box 398, Boulder, Colo. 1909.
- Henshaw, H. W., Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1909.
- Hersey, L. J., 2121 W. 34th Ave., Denver, Colo. 1909.
- Hochbaum, Hans, 1436 Calumet Ave., Los Angeles. 1912.
- Holland, Harold M., Box 515, Galesburg, Ill. 1901.
- Holt, Wm. L., Nageleseestr. 33, Friburg im Breisgau, Germany. 1909.
- Hoover, Theodore J., 1 London Wall, London, E. C., England. 1898.
- Howard, O. W., Box 484, Los Angeles. 1895.
- Howell, Alfred Brazier, Covina. 1908.
- Howell, B. F., Jr., 6 North West College, Princeton, N. J. 1909.
- Howes, Paul G., Stamford, Conn. 1910.
- Howsley, L. B., Culver, Oregon. 1909.
- Hubbard, Samuel, Jr., 98 Montecito Ave., Oakland. 1912.
- Hubbs, Carl L., 1536 E. 33rd St., Los Angeles. 1910.
- Huey, Lawrence, 32nd St. and Clay Ave., San Diego. 1909.
- Hunter, J. S., Union Hotel, San Mateo. 1903.
- Husher, Mrs. Gertrude H., 434 W. 20th St., Los Angeles. 1913.
- Illingsworth, J. F., College of Hawaii, Honolulu, H. T. 1896.
- Ingersoll, A. M., 832 5th St., San Diego. 1895.
- Irving, F. N., care of Southern Express Co., Columbia, S. C. 1910.
- Isham, C. Bradley, 27 W. 67th St., New York, N. Y. 1909.
- Jackson, Thos. H., 304 N. Franklin St., West Chester, Pa. 1911.
- Jacobs, J. Warren, 404 S. Washington St., Waynesburg, Pa. 1909.
- Jay, Alphonse, 1622 Pennsylvania Ave., Los Angeles. 1901.
- Jay, Antonin, 1622 Pennsylvania Ave., Los Angeles. 1901.
- Jeffreys, Chas., 15 Beaufort West, Bath, England. 1912.
- Jessee, Dr. R. L., Philo, Ill. 1909.
- Jewett, R. D., 1238 Caluenga St., Los Angeles. 1912.
- Jewett, Stanley G., 582 Bidwell Ave., Portland, Oregon. 1909.
- Johnson, Frank Edgar, 16 Amackassin Terrace, Yonkers, N. Y. 1911.
- Johnson, Morris, 711 W. 5th St., Valley City, N. D. 1912.
- Johnson, Miss Myrtle E., 450 N. Madison St., Pasadena. 1908.
- Jonas, Coleman, 1023 Broadway, Denver, Colo. 1910.
- Jones, Prof. Lynds, Museum of Oberlin College, Oberlin, Ohio. 1911.
- Jordan, A. H. B., Everett, Wash. 1911.
- Jordan, Dr. David Starr, Stanford University. 1902.
- Judson, W. B., 409 Mason Opera House, Los Angeles. 1894.
- Julien, Miss Lillian M., Yreka, Siskiyou Co. 1901.
- Kaeding, Geo. L., Battle Mountain, Nevada 1903.
- Kellogg, Miss Louise, Box 371, Suisun. 1911.
- Kellogg, Prof. Vernon L., Stanford University. 1901.
- Kennard, Frederic Hedge, Dudley Road, Newton Centre, Mass. 1911.
- Kennedy, C. H., Vinecrest Ranch, Sunnyside, Wash. 1912.
- Kermode, F., Provincial Museum, Victoria, B. C., Canada. 1911.

- Kessing, Lawrence R., 1430 Santa Clara Ave., Alameda. 1899.
- Keyes, Prof. Chas. R., Mt. Vernon, Iowa. 1900.
- Kimball, H. H., 523 E. Seaside Blvd., Long Beach. 1909.
- Knickerbocker, Chas. K., 445 N. Sacramento Ave., Carpenter Sta., Chicago, Ill. 1905.
- Knowlton, Dr. F. H., U. S. National Museum, Washington, D. C. 1910.
- Kofoid, Prof. C. A., East Hall, University of California, Berkeley. 1909.
- Kohler, Louis S., 98 Watsessing Ave., Bloomfield, N. J. 1909.
- Kuser, John D., Bernardsville, New Jersey. 1912.
- Lamb, Chester C., 549 W. 43rd Place, Los Angeles. 1899.
- Lancashire, Mrs. J. H., Alma, Mich., 1911.
- Lane, F. M., 346 Blackstone Ave., Fresno. 1911.
- Layne, J. Gregg, 232 S. Spring St., Los Angeles. 1912.
- Law, J. Eugene, Hollywood. 1900.
- Leland, H. J., Court House, Los Angeles. 1897.
- Letchworth, Pierre E., Jr., Covina. 1912.
- Lewis, L. Alva, 809 Yeon Bldg., Portland, Oregon. 1912.
- Libby, Miss Gretchen L., care of Fish and Game Commission, Mills Bldg., San Francisco. 1911.
- Linton, C. B., 125 W. Ocean Ave., Long Beach. 1906.
- Litsey, John B., Jr., 1722 Alston Ave., Fort Worth, Texas. 1911.
- Littlejohn, Chase, Redwood City. 1909.
- Loomis, Leverett M., California Academy of Sciences, San Francisco. 1902.
- Loshinski, John N., 2630 Channing Way, Berkeley. 1912.
- Love, Chas. A., 3353 22nd St., San Francisco. 1901.
- Lusher, Ernest E., Van Nuys. 1913.
- Luther, Clarence H., 8 McIlroy Bldg., Fayetteville, Ark. 1909.
- Magee, Wm. A., Jr., R. F. D. Box 433, Fruitvale, Oakland. 1912.
- Mailliard, Ernest C., Bank of California, San Francisco. 1909.
- Mailliard, John W., 300 Front St., San Francisco. 1894.
- Mailliard, Joseph, 1815 Vallejo St., San Francisco. 1895.
- Marsden, H. W., Witch Creek. 1905.
- Marshall, Benj. M., M. D., 2036 D St., Eureka. 1913.
- Martin, Jno W., 339 N. 1st Street, San Jose. 1907.
- Massey, Herbert, Ivy Lea, Burnage, Didsbury, Manchester, England. 1909.
- Mathews, Dr. Ellen, 142 Kenwood Ave., Glendale. 1901.
- McAtee, W. L., Biological Survey, Dept. of Agriculture, Washington, D. C. 1907.
- McGraw, Kate W., 2301 Hearst Ave., Berkeley. 1912.
- McGregor, R. C., Bureau of Science, Manila, P. I. 1893.
- McLain, R. B., Market and 12th St., Wheeling, West Va. 1897.
- Mearns, Maj. Edgar A., U. S. National Museum, Washington, D. C. 1905.
- Mecker, Jesse C. A., 51 Washington Ave., Danbury, Conn. 1907.
- Meister, H. D., Wauseon, Ohio. 1909.
- Merrill, E. W., Sitka, Alaska. 1912.
- Mershon, W. B., Saginaw, Mich. 1911.
- Messenger, G. H., Linden, Iowa. 1910.
- Miller, Prof. Loye Holmes, State Normal School, Los Angeles. 1905.
- Miller, Mrs. Olive Thorne, 5928 Hayes Ave., Los Angeles. 1911.
- Miller, W. DeWitt, American Museum of Natural History, New York, N. Y. 1909.
- Miner, Dr. H. N., Mohawk. 1903.
- Mitchell, Dr. Walton L., 603 Beacon Bldg., Wichita, Kan. 1909.
- Moore, Chas. S., Box 222, San Diego. 1913.
- Moore, Robt. T., 46 Mansion Ave., Haddonfield, New Jersey. 1911.
- Moran, R. B., 380 Kingsley Ave., Palo Alto. 1897.
- Morcom, G. Frean, 734 Belden Ave., Chicago, Ill. 1904.
- More, R. L., Vernon, Texas. 1911.
- Mueller, Carl, Marysville. 1911.
- Munk, Dr. J. A., 337½ S. Hill St., Los Angeles. 1909.
- Murie, O. J., 809 Yeon Bldg., Portland, Ore. 1913.
- Myers, Mrs. H. W., 306 Ave. 66, Los Angeles. 1912.
- Nelson, E. W., Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1904.
- Newberry, F. E., 210 Post St., San Francisco. 1904.
- Nicholson, Donald J., Orlando, Florida. 1911.
- Nicholls, J. T., American Museum of Natural History, New York, N. Y. 1909.
- Noack, H. R., 309 Perry St., Oakland, Cal. 1901.
- Norris, Joseph Parker, Jr., 2122 Pine St., Philadelphia, Penn. 1911.
- Norris, Roy, 735 N. 10th St., Richmond, Indiana. 1911.
- Oberholser, Harry C., 1444 Fairmont St., N. W., Washington, D. C. 1904.
- Ohl, H. C., Los Banos. 1913.
- Ohlendorf, W. C., M. D., 1922 Blue Island Ave., Chicago, Ill. 1910.
- Osgood, Wilfred H., Field Museum of Natural History, Chicago, Ill. 1893.
- Overton, Mrs. Eugene, 651 West 23rd St., Los Angeles. 1913.

- Owen, Virgil W., U. S. District Court, Federal Bldg., Los Angeles. 1896.
- Palmer, Elizabeth Day, 1741 Harvard Blvd., Los Angeles. 1909.
- Palmer, Dr. T. S., 1939 Baltimore St., N. W., Washington, D. C. 1903.
- Parker, Herbert, South Lancaster, Mass. 1911.
- Paul, Lucius H., 202 Edinburgh St., Rochester, New York, N. Y. 1911.
- Peabody, Rev. P. B., Route 6, Birch Haven, New Richmond, Wis. 1904.
- Pearson, T. Gilbert, 2257 Loving Place, New York, N. Y. 1910.
- Peck, Morton E., 244 N. 12th St., Salem, Ore. 1909.
- Pemberton, J. R., 18th and Corbett Road, Simons-Fout Brick Co., San Francisco. 1900.
- Pennock, Chas. J., Kennett Square, Chester Co., Penn. 1909.
- Perrin, J. B., Tucson, Arizona. 1913.
- Peyton, Lawrence, Sespe. 1909.
- Peyton, Sidney B., Sespe. 1913.
- Phelps, Frank M., 212 4th St., Elyria, Ohio. 1912.
- Philipp, Philipp Bernard, 220 Broadway, New York, N. Y. 1911.
- Phillips, Don C., 49 N. Main St., Napa. 1912.
- Phillips, John C., Knobfields, Wenham, Mass. 1911.
- Pierce, Wright M., Box 116, Claremont. 1912.
- Pierpont, Philip, Nordhoff. 1913.
- Pilsbury, Frank O., 90 Main St., Walpole, Mass. 1911.
- Pieasants, Mrs. J. E., R. D. 3, Orange. 1900.
- Pomeroy, H. K., Box 575, Kalamazoo, Mich. 1909.
- Price, A. E., Grant Park, Ill. 1905.
- Randolf, Miss Flora A., 2962 Derby St., Berkeley. 1907.
- Rankin, Edward P., El Monte. 1913.
- Rathbun, S. F., 217 14th Ave. N., Seattle, Wash. 1912.
- Ray, Milton S., 220 Market St., San Francisco. 1899.
- Redington, A. P., Box 66, Santa Barbara. 1897.
- Renick, Frank H., 1424 Belmont Ave., Seattle, Wash. 1912.
- Rich, Guy C., M. D., 1820 El Cerrito Place, Hollywood. 1911.
- Richards, E. B., 412 Kate Hayes St., Box 808, Grass Valley, Nevada Co. 1909.
- Richards, Dr. T. W., 1911 N St., N. W., Washington, D. C. 1908.
- Richardson, Chas. H., Jr., Bussey Institution, Forest Hills, Boston, Mass. 1902.
- Richmond, Dr. Chas. W., U. S. National Museum, Washington, D. C. 1904.
- Riley, J. H., U. S. National Museum, Washington, D. C. 1909.
- Ritter, Prof. W. E., La Jolla, San Diego Co. 1901.
- Roberts, Dr. T. S., 1603 4th Ave., Minneapolis, Minn. 1909.
- Robertson, Howard, 526 Merchants Trust Bldg., Los Angeles. 1896.
- Robertson, John McB., Buena Park, Orange Co. 1913.
- Rockwell, Robert B., 535 Clarkson St., Denver, Colo. 1908.
- Rossignol, Gilbert R., Jr., 2116 Bull St., Savannah, Ga. 1909.
- Rowley, J., 42 Plaza Drive, Berkeley. 1909.
- Rust, Henry J., Box 683, Coeur d'Alene, Idaho. 1911.
- Sage, John H., Portland, Conn. 1910.
- Sampson, Walter B., 814 Kohl Bldg., San Francisco. 1894.
- Saunders, Aretas A., 16 S. 9th Ave., Mt. Vernon, N. Y. 1909.
- Saunders, W. E., London, Ontario, Canada. 1910.
- Schneider, J. J., Box 363, Anaheim. 1899.
- Schussler, Geo. W., 1345 Oak St., San Francisco. 1911.
- Sclater, William Lutley, 10 Sloane Court, London, S. W., England. 1909.
- Sharp, Clarence S., Escondido. 1902.
- Sharples, Robert P., West Chester, Pa. 1911.
- Shaw, W. T., 600 Linden Ave., Pullman, Wash. 1911.
- Shelton, Alfred, 2237 Bancroft Way, Berkeley. 1909.
- Sherman, Miss Althea R., Route 2, McGregor, Iowa. 1911.
- Shufeldt, Dr. R. W., 3356 18th St., Washington, D. C. 1911.
- Silliman, O. P., Castroville. 1913.
- Skinner, E. H., 745 W. 17th St., Los Angeles. 1900.
- Sleeth, Asa, 1025 Michigan Ave., Portland, Oregon. 1913.
- Sloanaker, Jos. L., Box 661, Palisades, Mesa Co., Colo. 1910.
- Smith, Allyn G., Box 107, Redlands. 1909.
- Smith, Austin Paul, Winslow, Arkansas. 1907.
- Smith, Prof. Frank, University of Illinois, Urbana, Ill. 1911.
- Smith, Franklin J., Box 98, Eureka. 1913.
- Smith, Wilfred, 1111 6th St., Santa Monica. 1911.
- Snyder, Gaylord K., 1425 W. Jefferson St., Los Angeles. 1910.
- Snyder, Prof. J. O., Box 775, Stanford University. 1900.
- Spaulding, E. S., 1408 Chapala St., Santa Barbara. 1910.
- Spaulding, F. B., Lancaster, N. H. 1910.
- Spielman, Oscar P., 1440 Warner Ave., Chicago, Ill. 1909.
- Squires, Rev. W. A., 1137 E. Main St., Stockton. 1912.

- Steinbeck, Wm., 1029 N. Hunter St., Stockton. 1897.
- Stevens, G. W., Alva, Oklahoma. 1912.
- Stevens, Dr. J. F., Box 546, Lincoln, Nebraska. 1911.
- Stock, Chester, 492 7th St., San Francisco. 1912.
- Stone, D. D., R. F. D. 3, Oswego, N. Y. 1909.
- Stone, Geo. E., 2545 B, Benvenue Ave., Berkeley. 1912.
- Storer, Tracy I., East Hall, University of California, Berkeley. 1910.
- Strecker, John K., Jr., Baylor University, Waco, Texas. 1909.
- Strong, Wm. A., 41 Grand Ave., San Jose. 1912.
- Stuart, George H., n. w. corner Broad and Chestnut Streets, Philadelphia, Pa. 1913.
- Suksdorf, P. J., Bingen, Wash. 1910.
- Swales, Bradshaw H., Grosse Isle, Michigan. 1906.
- Swarth, H. S., Museum of History, Science and Art, Exposition Park, Los Angeles. 1897.
- Sweeney, Joseph A., care of Forest Service, Laramie, Wyoming. 1912.
- Swett, Miss Helen, Martinez. 1901.
- Sykes, George Francis, Corvallis, Oregon. 1913.
- Tarbell, Miss Olga S., 1 Cabrillo Place, Pasadena. 1906.
- Taverner, P. A., 55 Elmhurst Ave., Highland Park, Mich. 1909.
- Taylor, E. F., Grass Valley, Nevada Co. 1910.
- Taylor, Loren E., Box 482, Reno, Nevada. 1897.
- Taylor, Walter P., Museum of Vertebrate Zoology, University of California, Berkeley. 1905.
- Tawcett, F. H., Narrows, Harney Co., Oregon. 1912.
- Telford, Harry, Klamath Falls, Oregon. 1912.
- Terrill, L. McL., St. Lambert, Quebec, Canada. 1911.
- Test, Louis Agassiz, Rolla, Missouri. 1908.
- Tevis, L. K., Bakersfield. 1912.
- Thayer, John E., Box 98, Lancaster, Mass. 1906.
- Todd, W. E. Clyde, Carnegie Museum, Pittsburgh, Pa. 1909.
- Tracy, H. C., 504 N. Highland Ave., Hollywood. 1910.
- Treganza, A. O., 62 Hooper Bldg., Salt Lake City, Utah. 1907.
- Tremper, Lauren, 136 Dewey St., Philadelphia, Pa. 1911.
- Trenor, Thomas, 1501 Scott St., San Francisco. 1913.
- Trippe, Thomas M., Howardsville, Colo. 1911.
- Trumbull, J. H., Plainville, Conn. 1911.
- Tyler, John G., 1114 Belmont Ave., Fresno. 1905.
- Ulrich, Al. G., 3966 Arsenal St., St. Louis, Mo. 1909.
- Unglish, W. E., Box 233, Gilroy. 1910.
- Van Fleet, Clark C., 2020 Pacific Ave., San Francisco. 1906.
- Van Rossem, Adriaan, R. D. 2, Box 99 A, Pomona. 1909.
- Visher, Prof. Stephen Sargent, University of South Dakota, Vermilion, S. D. 1911.
- Walker, Alex., Mulino, Oregon. 1911.
- Walker, Ernest P., Laramie, Wyoming. 1910.
- Wall, Edward, Box 554, San Bernardino. 1913.
- Warren, E. R., 20 W. Caramillo St., Colorado Springs, Colo. 1909.
- Waterman, Miss Edith S., 728 Paru St., Alameda. 1906.
- Wear, Miss Winifred N., 2448 Monterey St., Fresno. 1909.
- Weber, H. B., Blackfoot, Idaho. 1910.
- Weed, Benj., 1950 Jones St., San Francisco. 1911.
- Welch, L. W., 527 E. 15th St., Long Beach. 1911.
- Wells, Gurni, R. F. D. 6, Box 73, Santa Rosa. 1911.
- Wetmore, Alex, Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1909.
- Wheeler, Mrs. J. W., Box 847, Tucson, Arizona. 1912.
- Wheeler, Roswell S., 296 Park View Terrace, Oakland. 1894.
- Wheelock, Mrs. H. B., 1040 Hinman Ave., Evanston, Ill. 1909.
- Whitcher, Chas. L., Los Olivos. 1911.
- Widmann, Otto, 5105 Von Versen Ave., St. Louis, Mo. 1904.
- Wilder, H. E., Carlotta, Humboldt Co. 1909.
- Willard, B. G., 30 Huntington Ave., Boston, Mass. 1910.
- Willard, F. C., Tombstone, Arizona. 1905.
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Santa Barbara, Cal.

THE  
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A Magazine of Western  
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Volume XV

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COOPER ORNITHOLOGICAL CLUB



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# THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



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Number 5

## A REVISION OF THE CALIFORNIA FORMS OF *PIPILO MACULATUS* SWAINSON, WITH DESCRIPTION OF A NEW SUBSPECIES

By H. S. SWARTH

WITH ONE MAP

(Contribution from the Museum of Vertebrate Zoology of the University of California)

THE SPOTTED TOWHEE (*Pipilo maculatus*) is a common and characteristic bird over a large part of California. Its range is included almost altogether in the Upper Sonoran and Transition zones. Its absence from nearly all parts of Lower Sonoran is probably chiefly due to the lack of suitable associational conditions over most of the arid regions comprising this zone; for in some places, as in the Lower Sonoran San Joaquin Valley, this towhee is found, though in small numbers, in the limited portion of the region which is adapted to its needs.

Six geographic races of this species are here recognized as occurring within the state. Five of them permanently occupy definite and fairly well-defined areas within the state; the sixth occurs only as the merest straggler. On the accompanying map (fig. 47) is shown the distribution in California of the five resident subspecies, platted from specimens and data in the Museum of Vertebrate Zoology. A comparison of this with Grinnell's (1902) map of the faunal areas of the state shows a close paralleling of the outlines of the ranges of the various subspecies with those of certain of the faunal areas. This, of course, is what is to be expected in a non-migratory and somewhat variable species, and occurs in this towhee as in *Melospiza*, *Thryomanes*, and certain other birds. Where there are striking differences in the two maps they can in most cases be explained satisfactorily by the towhee's known manner of zonal distribution.

In California the species is restricted substantially to the Upper Sonoran and Transition zones, debarred from the extremes of Lower Sonoran and Boreal, but otherwise not affected by zonal changes. Thus the Colorado Desert (taking the term as it is used on Grinnell's map), lying wholly within the Lower Sonoran Zone, has no representative of the species, except *P. m. curtatus* as a winter visitant in a restricted portion of the region.

In general terms the ranges of the various subspecies of *Pipilo maculatus* in California may be said to be as follows: *P. m. megalonyx* in the San Diegan and Southern Sierran districts; *P. m. falcifer* in the Santa Cruz, San Francisco Bay, and Northern Humid Coast districts; *P. m. falcinellus* in the San Joaquin-Sacramento and Sierra Nevada districts; *P. m. curtatus* in the Great Basin district; and *P. m. clementae* in a part of the Santa Barbara Island district.

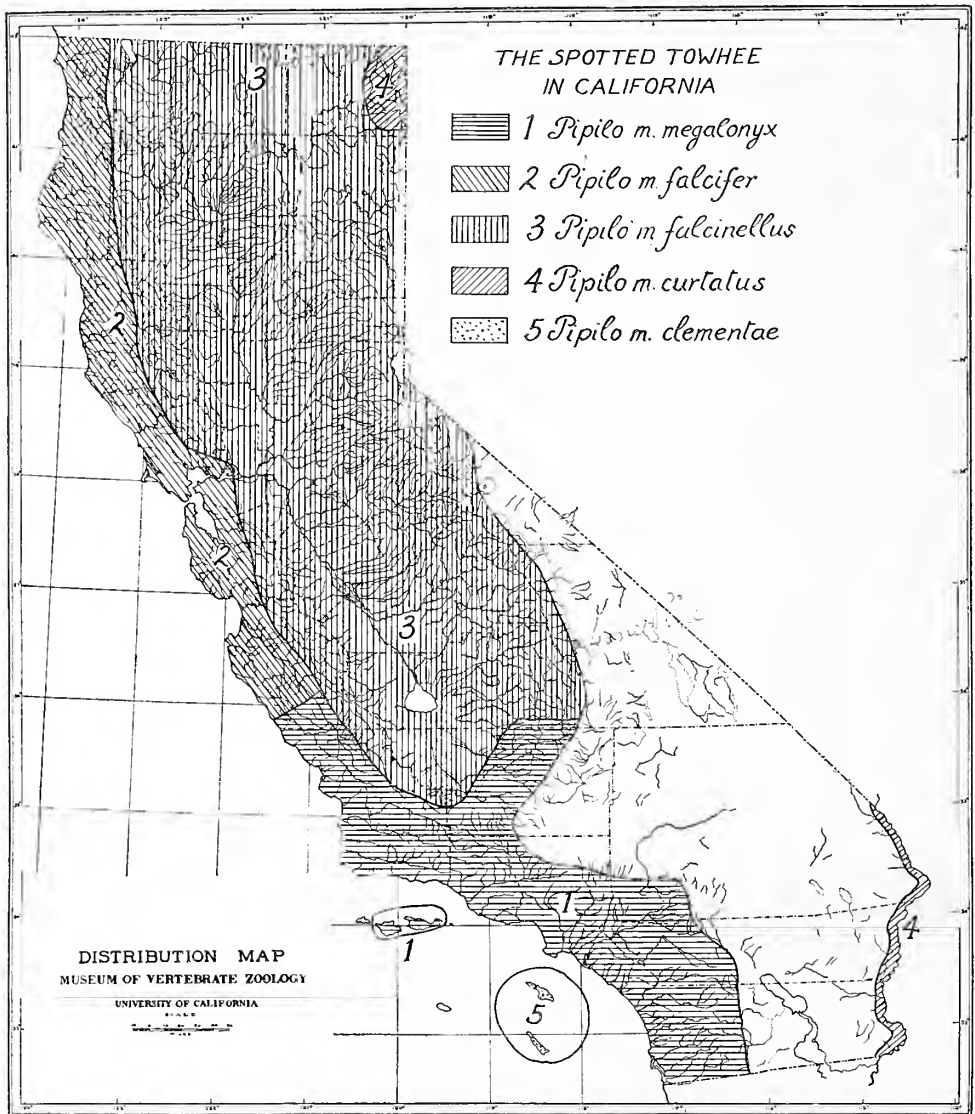


Fig. 47. Map showing the distribution in California of the subspecies of *Pipilo maculatus* occurring within the state. No. 1, *Pipilo maculatus megalonyx*; no. 2, *P. m. falcifer*; no. 3, *P. m. falcinellus*; no. 4, *P. m. curtatus*; no. 5, *P. m. clementae*.

While this map is believed to indicate the general outlines of the ranges with a fair degree of accuracy, it is not to be relied upon for the finer details of distribution. Thus although large portions of the San Joaquin Valley are not inhabited by the species, lack of specimens, together with the small scale of the map, render it impracticable to illustrate this point. The range of *curtatus* in northeastern California, as here shown, merely takes in the points from which specimens have been examined; and the boundary between *curtatus* and *falcinellus* may eventually prove to lie much farther west.

The "Southern Sierran district" includes all of southern California lying within the Transition Zone, and the towhee (*P. m. megalonyx*) ranges upward into this region from the San Diegan district, unchanged. This same subspecies (as distinguished from *P. m. falcinellus*) ranges well up into the southern Sierras, near the head of Kern River, but the Museum's recent (1911) exploration in this region shows that most of the Sonoran species of this locality are the same as those of the coast of southern California, and it seems as though the term "San Diegan" could well include the lower extremity of the southern Sierras east to the vicinity of Walker Pass. This seems to be the gap, rather than the Tehachapi as previously supposed.

The occurrence of *P. m. falcinellus* in the Sierra Nevadan district is exactly comparable to the manner of occurrence of *P. m. megalonyx* in the Southern Sierran.

*P. m. falcifer* ranges through three faunal areas, but not entirely unchanged. The increasingly humid climate from the Santa Cruz district northward is accompanied by certain changes in the towhees of the various regions, but the variations are slight, and as gradually accomplished as are the climatic changes.

*P. m. curtatus* is confined in summer to the Great Basin district, a small portion of which extends into extreme northern and eastern California. It is the only representative of this group in California which is migratory in its habits, the known winter range of the subspecies including the extremely narrow riparian strip of the Colorado River valley, south to Fort Yuma.

*P. m. clementae* is confined to two islands of the so-called Santa Barbara Island faunal area. This, although a convenient name by which to designate this group of islands, is unsatisfactory in that the islands form anything but a homogeneous group, as regards their animal life. The towhees themselves are a good example of this absence of uniformity. Thus *P. m. clementae*, a strongly marked race, occurs on San Clemente and Santa Catalina, while on Santa Cruz the spotted towhee is practically indistinguishable from the mainland bird.

In studying the differences in the various races of *Pipilo maculatus* in its wide distribution over the state, it will be observed that there are two distinct lines of variation, these lines converging at the extreme southwestern corner of California. Starting from the southwestern form *megalonyx* of the San Diegan district, gradual changes can be traced to widely different extremes at the northeast and northwest, respectively.

In the towhees of the coast region, from British Columbia to southern California, the back and rump of the male bird are uniformly and intensely black. The difference in color between the various coast forms lies in the extent of the white markings of wings, interscapulars and tail, and in the intensity of the chestnut coloration of sides and crissum, with *oregonus* at one extreme, *megalonyx* at the other, and *falcifer* occupying middle ground.

The birds of the interior (*falcinellus* and *curtatus*) have the rump almost invariably grayish or olivaceous; in the exceptional instances where the upper parts are almost or quite uniform, the black coloration is never as lustrous and intense as in the coast forms.

Along both these diverging lines a gradual and unbroken series of intergradients can be followed, from *oregonus* to *megalonyx* on the one hand, and from *curtatus* to *megalonyx* on the other. In one feature, however, *megalonyx* differs widely from both of the other types; for though in coloration it may be considered as intermediate between them, the exceptional development of the tarsus and foot, especially the hind claw, sets it off distinctly by itself.

Thus, taking the Pacific Coast representatives of the spotted towhee, we may consider *oregonus*, *megalonyx* and *curtatus* as occupying respectively the three points of a V, with *megalonyx* at the point of junction. There is unbroken connection between *oregonus* and *megalonyx* through *falcifer*, and between *curtatus* and *megalonyx* through *falcinellus*; but as far as the available material shows there is no connection between *oregonus* and *curtatus*.

The bird of the islands (*P. m. clementae*) has the large feet and claws, even more greatly developed than *megalonyx*, but in coloration it is distinctly of the gray-rumped inland type.

No specimens of the Lower California *P. m. maguirostris* have been available for comparison, but from the published descriptions it appears that one of the distinctive features of the subspecies is again large feet and claws.

From all this it would seem that the southwestern subspecies of *Pipilo maculatus* are distinguished from others of the species by the excessive development of feet and claws; while the northwestern (humid coast) and eastern (Rocky Mountain) forms are alike in having these members comparatively small and weak. The northwestern bird, in common with a majority of the animals of the same region, has assumed an intensely dark coloration. The Rocky Mountain forms (applying this term to *curtatus* as well as to *arcticus* and *montanus*) are all decidedly grayish in color.

In its comparatively dark hue *megalonyx* is probably to be regarded as a modification of the black *oregonus*, with which it is unbrokenly connected, but this view does not explain the coloration of the neighboring race *clementae*. By characters of the proportional size of the bill and feet *megalonyx* and *clementae* are closely connected, but the island bird is abruptly grayish colored, of the general style of the Rocky Mountain forms.

**Pipilo maculatus megalonyx** Baird. SPURRED TOWHEE.

*Type Locality*.—Fort Tejon, Kern County, California.

*Range*.—Pacific slope of southern California; north along the coast to San Luis Obispo County; in the interior, to the southern Sierra Nevada (northern Kern County). Also on Santa Cruz and Santa Rosa islands.

*Specimens examined* from the following localities. San Diego County: Dulzura; Julian; Foster. Orange County: Trabuco Canyon; Santa Ana Canyon. Riverside County: San Jacinto Mountains; Santa Rosa Mountains. San Bernardino County: San Bernardino Mountains. Los Angeles County: Pasadena; El Monte; Glendora; Cerritos; Santa Monica Mountains. Ventura County: Ventura; Nordhoff; Mount Pinos; head of Piru Creek. Kern County: Mount Breckinridge; Kern River, 12 miles below Bodfish; Greenhorn Mountains; west slope of Walker Pass; Fay Creek, 6 miles north of Weldon; Kiavah Mountain; Onyx. Santa Barbara County: Santa Cruz Island. San Luis Obispo County: Santa Margarita; Paso Robles. Total number of specimens, 166.

*Distinguishing Characters*.—Coloration very dark, and white markings restricted. Adult male (and sometimes the immature male as well) with the entire back uniformly deep black (except for the usual white markings), the rump being deep black instead of more or less grayish or olivaceous. Hind claw longer than in any other California race of *Pipilo maculatus*.

*Remarks*.—*Pipilo m. megalonyx* as here defined is almost the equivalent of Ridgway's (1899, p. 254) *P. m. atratus*. There is, as pointed out by that author, a race on the Pacific slope of southern California, characterized principally by exceedingly dark coloration; but the range of this subspecies includes the type locality of *Pipilo megalonyx* Baird, Fort Tejon, and extends some distance north

of this locality, both in the interior and on the coast. *Atratus* is thus a synonym of *megalonyx* (see Swarth, 1905, p. 171, and Ridgway, 1906, p. 100), but the characters attributed by Ridgway to the former race are applicable to *megalonyx* as here restricted.

Eleven specimens from Santa Cruz Island have been examined, six from the Grinnell collection, four from the Mailliard collection, and one from the Willett collection. Two of the Mailliard specimens (nos. 3184, 3244) had been examined by Mr. Ridgway at some time, and bear the following writing upon the attached labels: "*Pipilo maculatus clementae*. Not typical; near *megalonyx*. R. R." The eleven specimens at hand are decidedly much more closely similar to *megalonyx* than to *clementae*, being in fact, practically indistinguishable from mainland birds. In this connection also see Linton (1908, p. 208).

No specimens are available from Santa Rosa Island; but it is probably safe to anticipate that birds from that island will be found similar to the Santa Cruz form rather than to the more remote San Clemente and Santa Catalina island subspecies.

***Pipilo maculatus falcifer* McGregor.** SAN FRANCISCO TOWHEE.

*Type Locality*.—Palo Alto, Santa Clara County, California.

*Range*.—A narrow strip along the coast of central and northern California, west of the inner coast ranges; from the northern boundary of the state south through Monterey County.

*Specimens examined* from the following localities. Humboldt County: Cuddeback. Trinity County: Van Dusen River. Mendocino County: Sherwood. Marin County: Nicasio; Mailliard; Bolinas; Fairfax; San Geronimo. Contra Costa County: Martinez; Lafayette; Walnut Creek; Mount Diablo. Alameda County: Oakland; Berkeley; Haywards; Alameda. San Mateo County: Pescadero. Santa Clara County: Palo Alto; Black Mountain. Monterey County: Pacific Grove; Sur River. Total number of specimens, 74.

*Distinguishing Characters*.—Coloration dark; white markings more restricted than in *megalonyx* but much more extensive than in *oregonus*. Hind claw smaller and weaker than in *megalonyx*.

*Remarks*.—There is a steady diminution northward in the extent of the white areas, birds from Monterey County being much less easily distinguished from *megalonyx* than are those from western Mendocino County. The northernmost California specimens available, from Mendocino and Humboldt counties, are, however, clearly referable to *falcifer* rather than to *oregonus*. The entire series distinguished by the name *falcifer* forms a connecting link between *megalonyx* and *oregonus*, but on the whole is much more closely related to the former race. Specimens from the region of merge of *falcifer* and *megalonyx*, in Monterey and San Luis Obispo counties, are with difficulty assigned to one or the other of the two forms, so gradual is the change. No specimens were available from extreme northwestern California and southern Oregon, from between the Humboldt Bay region and Salem, Oregon. Three examples from the latter locality are typical *oregonus*, those from the former are, as before indicated, undoubtedly *falcifer*. Thus there are no specimens at hand showing the finer degrees of intergradation between *falcifer* and *oregonus*, which may be supposed to be found somewhere in southern Oregon.

The numerous records of *Pipilo m. oregonus* from California nearly all properly pertain to this subspecies.

**Pipilo maculatus oregonus** Bell. OREGON TOWHEE.

*Type Locality*.—Columbia River, at or near Fort Vancouver, Washington.

*Range*.—Coast district of southern British Columbia, including the southern part of Vancouver Island, south through western Washington into Oregon.

*Specimens examined* from California: One from San Clemente Island.

*Distinguishing Characters*.—White markings reduced in extent more than in any other race of *Pipilo maculatus*. Chestnut areas of sides and crissum darker than in *megalonyx* or *falcifer*. Hind claw short and weak.

*Remarks*.—But one example of *P. m. oregonus* secured in California has been examined. This specimen (no. 21273, Mus. Vert. Zool.) is a female, taken on San Clemente Island December 4, 1908; it was formerly in the collection of Mr. John E. Thayer, but was donated by him to the Museum of Vertebrate Zoology. This bird is to all appearances a typical example of *oregonus*, being indistinguishable from comparable specimens from Vancouver Island.

Whether it is in fact a veritable representative of this form, a straggler which had wandered an almost incredible distance from its normal habitat, or whether it is an individual variant of *clementae*, a "sport" which has assumed a superficial resemblance to another race, it is impossible to say; but the closeness of its resemblance to the form *oregonus* leaves no choice but to call it by that name. The fact that *oregonus* is usually so limited in its migrations that it does not range southward even as far as northern California, makes doubly astonishing this single occurrence at a far southern island locality.

The capture of this bird was first recorded by Linton (1909, p. 194).

**Pipilo maculatus clementae** Grinnell. SAN CLEMENTE TOWHEE.

*Type Locality*.—Smuggler's Cove, San Clemente Island, California.

*Range*.—San Clemente and Santa Catalina islands, California.

*Specimens examined* from the following localities: San Clemente Island; Santa Catalina Island. Total number of specimens, 46.

*Distinguishing Characters*.—General size slightly greater than in *megalonyx*; bill and feet appreciably larger. Coloration grayer than in *megalonyx*; black areas in the male duller and less intense; rump and lower back more or less mixed with grayish.

*Remarks*.—Apparently confined to San Clemente and Santa Catalina islands, where it is resident. I am unable to distinguish the slightest difference between birds from the two islands.

**Pipilo maculatus falcinellus**, new subspecies. SACRAMENTO TOWHEE.

*Type*.—Adult male; no. 22832, Univ. Calif. Mus. Vert. Zool.; Marysville Buttes, alt. 500 feet, 4 miles northwest of Sutter, Sutter County, California; April 8, 1912; collected by W. P. Taylor; original number 5555.

*Distinguishing Characters*.—Most nearly similar to *Pipilo maculatus megalonyx* Baird, from which it differs in weaker foot, with noticeably short, weak, hind claw, in somewhat greater extent of white markings, and olivaceous or grayish rump. From *Pipilo m. curtatus* it differs in slightly longer hind claw, decidedly darker brown on sides and crissum, and in having the black areas more intensely and glossy black.

*Range*.—San Joaquin and Sacramento valleys, both slopes of the Sierra Nevada south to southern Tulare County and including the foothill region along the western edge of Owens Valley; north to the northern boundary of the state, between the coast ranges and the Warner Mountains, in Siskiyou, Trinity, and Shasta counties.

*Specimens examined* from the following localities. Tulare County: Trout Creek. Inyo County: Lone Pine; Independence; Kearsarge Pass; Carroll Creek; Cottonwood Creek. Placer County: Dutch Flat; Blue Canyon. Stanislaus County: Modesto. San Joaquin County: Tracy; Tracy Lake. Solano County: Vacaville. Sacramento County: Sacramento. Amador County: Carbondale. Yolo County: Grand Island. Sutter County: Marysville Buttes. Butte County: Oroville. Tehama County: Tehama. Shasta County: Tower House; McCloud River near Baird. Siskiyou County: Callahan; Summerville. Total number of specimens, 66.

*Remarks.*—The range of this subspecies in California practically corresponds with that ascribed by Ridgway (1901, p. 416) to *megalonyx* as distinguished by him from *atratus* in the southern part of the state. The name *megalonyx* has since been determined to apply to the southern subspecies, and at least one writer (Goldman, 1908, p. 205) has used the name *montanus* for the form here called *falcinellus*, in recognition of its evident difference from typical *megalonyx*.

From *montanus*, however, it is much more widely separated, and I have seen no California specimens of this or any other form of *Pipilo maculatus* which bear close resemblance to that race.

***Pipilo maculatus curtatus* Grinnell. NEVADA TOWHEE.**

*Type Locality.*—Pine Forest Mountains, Humboldt County, Nevada.

*Distinguishing Characters.*—The palest colored of the California races of *Pipilo maculatus*. Besides the general pale coloration and greater extent of white markings, it differs from *megalonyx* in much shorter hind-toe-and-claw. From *P. m. montanus*, to the southward and eastward in Arizona, it differs in slightly darker coloration, shorter wing and much shorter tail. From *P. m. arcticus* it differs in darker colors and slightly longer tail and hind-toe-and-claw.

*Range.*—Known to occur in California only in the extreme northeastern corner of the state (the Warner Mountain region), possibly in certain of the desert mountain ranges (Panamint, Inyo, and White mountains), and in winter in the valley of the Colorado River. Also found in northern Nevada and eastern Oregon (Grinnell, 1911, p. 310).

*Specimens examined* from the following localities. Colorado River: 5 miles south of Needles; Chemehuevis Valley; Riverside Mountain; Fort Yuma (collection of A. B. Howell). Warner Mountains: Sugar Hill; Dry Creek. Total number of specimens, 7.

*Remarks.*—In the Sixteenth Supplement to the A. O. U. *Check-List* (1912, p. 386) this subspecies is denied recognition, as being inseparable from *P. m. arcticus*. As according to the range ascribed to *arcticus* in the *Check-List* (1910, p. 279) the latter does not approach Nevada or California in the breeding season any nearer than southern Alberta and southcentral Montana, this does not seem to have been a very logical conclusion to reach. The area inhabited by *curtatus* is included in the range of *Pipilo m. montanus* as given in the *Check-List*, and if the former is to be relegated to synonymy it should, according to this treatment, be placed with *montanus*. There is, however, no difficulty whatever in distinguishing these two forms.

The conclusion in the Sixteenth Supplement, though illogical when taken in connection with the treatment all the related subspecies are accorded in the *Check-List*, is really nearer the truth of the matter, in that *curtatus* actually is in some respects more nearly like *arcticus* than *montanus*.

Through the courtesy of Dr. Louis B. Bishop I have been privileged to borrow from his collection a series of eleven specimens of *P. m. arcticus*, all breeding adults, including four males and three females from southeastern Saskatchewan and Alberta and thus practically topotypes of the subspecies.

Comparison of these birds with the available series of *curtatus* gives the following results: The males of the two subspecies are very closely similar. In

the male of *arcticus* the black of the upper parts is usually more mixed with olivaceous or grayish, and the white markings, especially of the scapulars and rectrices, are rather more extensive and noticeable, but these differences are not especially conspicuous, and at a casual glance the males of the two forms look very much alike. There are no differences of moment in size or proportions.

The females of the forms are so dissimilar, however, as to leave no doubt as to the distinctness of the two. In *curtatus* the female is of the type of the western races of *P. maculatus* in general, with the head and the ground color of the upper parts very dark (a dull slate color), with little or no indication of brown. In the female of *arcticus* these same areas are so overlaid with a brownish suffusion as to give a decidedly different and lighter tone of color to the whole bird. This is not a difference requiring close scrutiny for discernment, but is something that is readily apparent at a glance. When series of females of *P. m. curtatus*, *P. m. arcticus*, and *P. erythrophthalmus* are laid out side by side, so as to produce a general "mass effect" of each of the three, the body color of *arcticus* appears to be almost intermediate between the slaty hue of *curtatus* and the brown of *erythrophthalmus*.

Thus the study of this material leads directly to the conclusion that the name *curtatus* should not be considered a synonym of *arcticus*, as has been claimed, but that it represents a distinguishable subspecies, apparently intermediate between the paler colored Rocky Mountain forms and the more intensely black Pacific Coast races. The material available in the present study shows unbroken intergradation from *curtatus* through *falcinellus* to the extremely dark *megalonyx*, though not between *curtatus* and *arcticus*.

In this connection the probability suggests itself of the breeding bird of the central Rocky Mountain region (Utah, Colorado, etc.) being of the form *curtatus* rather than *montanus*, to which it is at present referred, but the pertinent material at hand does not warrant more than the suggestion.

In differentiating *curtatus* from the other California forms the pale color of the chestnut areas in the former appears to be an excellent character. A molting bird at hand from the Warner Mountains (Mus. Vert. Zool., no. 14861), in which many of the chestnut-colored side and flank feathers are still partly ensheathed, nevertheless has these parts lighter colored than examples of *falcinellus* or *megalonyx*. The absolutely fresh and unworn condition of the feathers in this case is conclusive evidence against the assumption that the paler color of *curtatus* is due to fading, being produced by the fiercer heat and sunshine to which it is exposed.

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MEASUREMENTS IN MILLIMETERS (AVERAGE, MINIMUM AND MAXIMUM)  
OF CERTAIN OF THE SUBSPECIES OF *PIPILO MACULATUS*

	Wing	Tail	Culmen	Tarsus	Hind Toe and Claw	Spot on Tail *
<i>Pipilo maculatus megalonyx</i> 10 males from Pasadena and San Jacinto Mts.	84.6 (80-88)	96.4 (91-100.5)	13.5 (12.5-14.5)	27.2 (25-28)	21.3 (20-23)	24.4 (21-29)
<i>Pipilo maculatus falcifer</i> 10 males from Palo Alto and Oakland	82.9 (80-87)	94.2 (91-100.5)	13.9 (13.2-15)	27.9 (26.5-29)	20.9 (19.2-22)	22.7 (19-27)
<i>Pipilo maculatus oregonus</i> 10 males from Vancouver Island, B. C.	84.6 (80-88)	95.9 (89-100)	14.7 (14-15)	28.1 (26-29.5)	19 (17.5-20)	20.7 (18-25)
<i>Pipilo maculatus falcinellus</i> 10 males from Sacramento Valley	85.4 (84-88)	98.3 (96-103)	14.1 (13-15)	27.9 (27-28.5)	18.9 (18-20.5)	26.8 (25-30.2)
<i>Pipilo maculatus curtatus</i> 6 males from Nevada and Oregon	85.7 (83.5-86.5)	98 (95-101)	13.8 (12.9-14.8)	27.4 (26.5-28.5)	18.6 (18-19)	27.5 (26-31.8)
<i>Pipilo maculatus arcticus</i> 6 males (4 from Saskatchewan and Alberta)	86.8 (82-89)	98.2 (96-101)	13.08 (12.2-13.8)	26.5 (25.5-27.5)	18.5 (17.5-20)	33.1 (29-36)
<i>Pipilo maculatus clementae</i> 7 males from San Clemente Island	84 (84-87)	95.3 (91-100)	14.7 (14-15.5)	28.4 (28-29)	21.2 (19-24)	22.7 (22-24)

\* Length of white spot on inner web of outer tail feather.

## UNUSUAL NESTING SITE OF THE MALLARD

By O. J. MURIE

WITH THREE PHOTOS BY THE AUTHOR

THE NEST of a common bird becomes of interest when found in an unusual situation, such as shows a deviation from the ordinary habits of the bird.

When it was reported that a Mallard (*Anas platyrhynchos*) was nesting in a tree seven or eight feet from the ground, I at first thought a mistake had been made and that the bird observed was a Wood Duck, or possibly a merganser. But whatever the species, the nest would be worth investigating.

Accordingly, early in the morning of April 23, well supplied with camera and films, I boarded the "Ione", bound for the duck's nest.

It was a little more than two and a half hours run down the Willamette and up the Columbia to the region about Columbia Slough. The steamer



Fig. 48. BRANCH OF COLUMBIA SLOUGH, OREGON, IN VICINITY OF MALLARD'S NEST

stopped to put me off at "Taylor's Landing", and I lost little time in looking up the farmer who was supposed to know about the extraordinary nest. I found him at breakfast. "Yes, it's true," he affirmed. "It's a mallard all right."

I explained to him my interest in the nest, and induced him to leave his work a while and take me to the place. We followed a branch of Columbia Slough, which is here lined on both sides with ash trees and tall cottonwoods. As we walked, my informant told me what he knew about the duck. He first found the nest, with ten eggs, about a week before, and a few days later, April 18, opened one egg to see if the bird was sitting. He had in mind taking the eggs to place under a sitting hen, but found that incubation was already well begun.

We presently took a trail into the woods, and I was cautioned to walk quietly, as we were nearing the place. Soon the tree was pointed out to me, and we crept along carefully until within thirty feet of it. My guide showed me the location of the nest, but neither one of us could see the nest itself or the bird. I was just stepping on a log to get a better view, when off went the duck, a

female mallard, "quacking" as she flew rather slowly out through an opening in the trees. She circled about once, then disappeared down the slough.

I climbed to the nest, eight or nine feet up, and found nine eggs. The reports were true in every particular. The farmer now left me to my own devices and I proceeded to take several photographs.

The strip of woods at this point was not over thirty or forty yards wide, while the nest tree stood some forty feet from the slough bank. It was a shaggy



Fig. 49. ASH TREE, SHOWING LOCATION OF MALLARD'S NEST (MARKED BY WHITE CROSS)

old leaning ash, covered with moss, scattering ferns and other plants, with dried leaves, sticks and rubbish accumulated in various crotches. A large limb branching off from the slanting trunk, formed a level place where dirt and moss had gathered, making a good foundation for the nest, which was simply a depression well lined with down.

After making several exposures of the nest and eggs, I fastened the camera to a nearby limb, with a long cord attached to the shutter. I covered it with moss and ferns, arranged the cord along the ground, then went away in the hopes that the mallard would return to be photographed. But nearly an hour later I crept up carefully, to find that she had not been back. Evidently the camera was not well enough concealed to overcome her suspicions, and, as I feared I had already kept her off the nest too long, I took down the apparatus and left the place.

On May 3 I went back to see if anything further had developed. As I neared the tree, I could see the head of the mallard above the edge of the nest, watching me intently. I looked at her through the field glasses

and made a sketch of her on the nest; then tried to get nearer. But the moment I began to move up she flew off as before toward the slough. The eggs were still there and I could see no disturbance of any kind.

A pair of crows had seemed quite concerned at my approach. I thought the duck's nest was the center of their interest and they were virtuously calling "thief" when they imagined a nest robbery was about to take place. But now I spied their nest in the top of an ash tree not more than forty feet away, and



Fig. 50. NEST AND EGGS OF MALLARD ON TREE TRUNK

nothing on the nest, even when within fifteen feet of it. I knew the mallard would not sit so close before, and when I climbed to the nest my fears were realized. I was just too late! There were the empty egg shells. Probably not far away were nine mallard ducklings, swimming and diving, not worrying in the least about how they got there.

on climbing, found five eggs. While I was up at the crow's nest the mallard duck and her mate both circled about above me, "quack-quacking" anxiously as they saw me perched so conspicuously in the tree top. This was the first time I had seen the drake at all and from their actions I concluded the eggs must be about ready to hatch. As I was leaving the slough bank I saw them both swimming together a short distance off, waiting to see if I would not go away.

I fully intended to watch faithfully from now on and visit the nest each day, on the chance that I might be on hand when the young were hatched out and ready to descend from the tree. But something detained me each day, until it was May 8 before I again went to Columbia Slough.

Not far from the nest tree I flushed the drake from a little pond in the nearby pasture. The ducks were evidently still in the neighborhood. I approached the

## CALL-NOTES AND MANNERISMS OF THE WREN-TIT

By J. GRINNELL

(Contribution from the Museum of Vertebrate Zoology of the University of California)

I WAS AROUSED to the point of assembling the facts for the present sketch by reading an account of the notes and habits of the Wren-tit in a certain popular book on California birds. The account referred to was so at variance with my own impressions of the bird in question that it led me to wonder

somewhat acrimoniously whether or not the author had ever taken the pains to acquire even a passing acquaintance with the bird; and this in spite of its being one of the commonest and at the same time the most distinctive species in California's coast district.

Yet, upon sober second thought, it may be more just to suppose that the discrepancies arose, in part, at least, from the different ways in which two people will hear the same sounds, or *think* they hear them. It is a difficult undertaking, too, for anyone to describe these sound impressions so as to be at all intelligible to some one else. This more charitable view is the one that I hope will be meted to me in case some keener observer than I finds errors in my description.

Contrary to published notions, the Wren-tit is without question one of our easiest birds to locate and catch sight of. The calls are given at such frequent intervals throughout the day, even in foul weather, that if there are any Wren-tits in the vicinity at all, it does not take long to determine the fact. It proves an easy task to ensconce oneself motionless in a thicket in the neighborhood and "squeak" the birds all about one. By lying on the ground beneath tall and dense chapparal, and "squeaking" judiciously, I have had a pair or even a family of the birds within arm's length of me again and again. Their curiosity even exceeds that of chickadees and jays.

The following is a concise analysis of the call-notes of the Wren-tit (*Chamaca fasciata*), devised with a view to conveying to the reader as nearly clear a notion as possible of what I think I hear myself. This analysis is based on fresh observations, notebook records "taken on the spot" during the past year. Previous impressions have been repeatedly verified. The station for most of my recent observations has been the tract of willow brush on the University Campus, Berkeley, about three hundred yards up Strawberry Canyon from the old Chemistry Building.

A. *Can be imitated closely by human whistle.*

1. Loud series of staccato notes all on same pitch but with decreasing intervals, the last of the series run together to form a trill: pit—pit—pit—pit—pit-tr-r-r-r-r. Several counts gave from three to five of the first, distinctly-uttered, notes.

2. Loud series of staccato notes all on same pitch but at equally measured intervals and not run together into a terminal trill: pit-pit-pit-pit-pit-pit. Several counts gave from three to fourteen notes in the series in the different cases.

3. Low, mournful, measured (but not staccato) series of slurred notes on nearly the same pitch; sometimes a scarcely-to-be-detected descent in pitch towards the last of the series: keer-keer-keer-keer-keer. From three to eleven of these constitute a series.

4. An extremely faint, single, but clear, "peep", only to be heard within ten feet of the birds.

B. *Cannot be imitated by human voice or whistle; a noise, like scratching of dry rough-barked weed stalks against one another.*

5. Harsh clicking sound, rather loud and set off in abrupt segments; an alarm note.

6. Low and prolonged; similar to last but run together, producing an effect as of the rustling of footsteps in dry leaves.

7. A single, very low "chuck", uttered by individuals of a pair when reconnoitering through dense brush within a very few feet of one another.

Number 1 reminds me remotely of the spring song of the California Brown Towhee; but it is *not* like the song of the Canyon Wren. There is no "descending" series of notes to warrant the absolutely erroneous book-name of "scale-bird"! Each of the different series of notes is uttered on precisely or very nearly the same pitch.

It often happens that one Wren-tit will begin its series of notes promptly after another has begun *its* series, so that the two series overlap. As the tone of voice varies among individuals, and possibly in the same individual at different times, there results from this overlapping a peculiar and often quite musical cadence. The tendency for individuals to answer one another across a canyon is often in evidence.

Number 3 recalls one of the notes of the Rufous-crowned Sparrow. Number 5 has been described as an "insect-like chirp", and as a "hissing or cricket-like note." It depends on the insect in the describer's memory! I have failed to think of any satisfactorily comparable noise to be heard commonly anywhere. As noted above, it can be reproduced after a fashion by rubbing dry, rough-barked weed-stalks against one another.

In past years I have been guilty of killing, for specimens, close to two hundred Wren-tits in various parts of California—a horrible confession, to be sure, but let us hope always to some good purpose. As one result, it has been established that there is no appreciable difference between the sexes in external appearance or behavior. The notes are all of them identical in the two sexes, as I have proven over and over again to my satisfaction by shooting the birds uttering them.

It is questionable, therefore, whether there is any regular nuptial *song*, and in this lack of a true song the wren-tit resembles the Bush-tit (see CONDOR, 1903, pages 85 to 87). There is also no song-season, the notes described being heard at any and all times of the year. They are particularly noticeable during the molting season, August, when most other birds are silent.

During most of the year the Wren-tit forages in pairs. Two or more pairs are often found in one neighborhood. In event of some exciting occurrence to attract attention, several pairs may be found congregated in one spot. From the nesting season through the summer to the time of fall dispersal family parties of from four to six Wren-tits, young with their parents, are the rule. Individuals and companies are more prone to wander during August and September than at other times of the year. I have seen them in late summer in the garden shrubbery of a city suburb, many blocks from any wild land. Wren-tits are pre-eminently non-migratory, however; they are one of the most *resident*, that is, most closely home-abiding at all seasons, of our birds, of similar status in this respect to the Brown Towhee and California Thrasher.

The generic name *Chamaea*, meaning "on the ground," is scarcely more appropriate than the specific name *fasciata*, meaning "striped"! The Wren-tit is not at all terrestrial in any of its habits, in the sense that a towhee, or a meadow-lark is. I do not recall ever having seen a Wren-tit scratch in fallen leaves or earth, or even walk upon the ground, save to a very limited extent in approaching a drinking place. This is essentially a *perching* bird, though it habitually affects a *low* zone of arborescent shrubbery.

The movements of the Wren-tit are relatively slow and dignified. There are no nervous twitchings of the wings, or other extreme mannerisms as with the kinglets. Articles of food—insects, seeds, and small fruits—are gathered in sober fashion, with moderate reaching out of the head in normal posture. There

is no inverting of the body, as with bush-tits or chickadees, and no creeper-like scaling of stems or branches.

The Wren-tit rarely undertakes flights of more than a few yards, just as short ones as necessary to carry it between bushes. Even when rapidly pursued it dodges under cover at every opportunity in preference to taking refuge in open flight. Indeed the harder pressed a bird may be, the more intent does it become on hiding away in the densest brush tangle to be found in the vicinity. The excessively short and rounded wing of the Wren-tit appears to be an index of its limited powers of flight, and of the fewness and shortness of such flights as are undertaken.

On the other hand the tail is of great length proportionally—another development repeated among birds which live in and among bushes. Aside from the white iris, which gives the bird a curious facial expression, the tail is the most prominent feature in the Wren-tit's appearance. This appendage is kept in almost constant vibration. In flight it is violently flapped down and up in alternate rhythm with each series of wing beats. At every change of position in hopping from twig to twig, the tail is jerked either laterally or antero-posteriorly in accentuated sympathy. When a series of notes is uttered, each separate note is accompanied by a twitch of the tail.

The tilt of the tail is generally most pronouncedly upward, but still never, when conditions for observation have been favorable, anywhere near vertical. This has usually been exaggerated both in published figures and descriptions. Sixty degrees from the horizontal is the very limit of elevation in my experience, and forty-five degrees is near the average. For normal position of tail and body in the Wren-tit, see Joseph Mailliard's photograph in *THE CONDOR*, 1906, page 47. When the birds are foraging unconcernedly through thick foliage the tail is often held out horizontally, and not infrequently even depressed. Degree of elevation of the tail seems to be a sort of index to degree of alertness or of excitement.

The plumage of the Wren-tit is notable for its great quantity and laxness. The bird always presents an overly fluffed-out or plump appearance, from which the great length of tail does not detract. There is thus lacking the trim appearance of a warbler or virco. The whole *ensemble* of characters of the Wren-tit emphasizes, the more one considers them, the uniqueness of this avian type.

Taxonomists are still puzzled as to the proper disposition of the Wren-tit in their systems of classification. Sometimes the bird has been put into a sub-family within the family Paridae, the latter including also the titmice and chickadees. Again, the Wren-tit has been assigned full family rank all by itself, and its family, Chamaeidae, has been listed next to the Troglodytidae, or wrens. This last apparently expresses the latest published notions, though it has been suggested that there is possible affinity with the Timeliidae, or babbling thrushes, of the Old World.

As far as I know, the sources of evidence so far adduced have been structural characters only, chiefly skeletal and those external ones of plumage, feet and bill. It occurs to me to ask why we might not obtain some clue as to relationship from a comparative study of the songs and notes of the various birds concerned. The structures controlling the voice in birds are almost as extremely specialized as are those of plumage.

However, having offered the suggestion, the writer prudently retires from the field. The problem is too big to be handled from so small a basis of tangible fact. A classification and nomenclature of *sounds* is now needed, after the plan of Ridgway's "Color Standards and Color Nomenclature."

## FROM FIELD AND STUDY

**Unusual Records for California.**—The following records made by the writer during the winter of 1912-13 may be of interest.

*Anhinga anhinga.* I had a very good view of a Darter, or Water Turkey, through an eight power glass on February 9, 1913, at Potholes, on the California side of the Colorado river. When first seen the bird was flying, and looked for all the world like a small Goshawk with a slender stick projecting in front; the regular succession of wing beats and sailings was just that of a Goshawk, and when the Darter alighted on a tree it did so with the ease of a raptor. I watched it for half an hour through my glass about one hundred and forty yards away; but all efforts to get within shooting range resulted in failure, as a sea of liquid mud and water separated me from the tree it sat in. Herbert Brown has already recorded the species on the Arizona side of the Colorado; still I would not blame anyone for doubting this sight identification (though I have no doubt as to its correctness myself), and only record it in the hopes that some one will make it a point to go to this swamp and collect a specimen.

*Sayornis phoebe.* I collected a specimen of the Eastern Phoebe at Moss Beach near Pacific Grove on March 7, 1913. A rather notable fact was that both the other species of the genus—the Say and Black Phoebes—were in sight at the same time. The specimen is now No. 23461 in the collection of the Museum of Vertebrate Zoology at Berkeley.

*Passerculus sandwichensis bryanti.* While collecting Marsh Sparrows at Carpinteria near Santa Barbara with Mr. W. Leon Dawson, the latter shot an undoubted specimen of the Bryant Marsh Sparrow, the others taken all being the Belding. The date was December 23, 1912, and this is probably the southernmost record for the subspecies. Mr. Joseph Grinnell has verified the identification of this specimen which is now in my collection. A few days later several others were seen in company with Belding Sparrows on the Estero at Santa Barbara.—ALLAN BROOKS.

**Notes and Records from Brooks County, Texas.**—All the following notes are based on observations made in the vicinity of Falfurrias, Brooks County, Texas, situated approximately 125 miles northwest of Brownsville, Texas. The Los Olmos Creek is the only stream in the vicinity, and this contains water only after heavy rains; nevertheless it is fringed with a growth of oak, hackberry and huisache, which proved very attractive to numerous forms of bird life. The notes cover a period extending from November 23, 1912, to April 10, 1913.

*Grus mexicana.* Of common occurrence during December and January; its loud notes were often heard when the birds themselves were invisible. Six to eight individuals usually constituted a flock.

*Callipepla squamata castanogastris.* Not as common as the Texas Bobwhite and while both are occasionally found in the same flock, the Chestnut-bellied Quail shuns, as a rule, the cultivated fields, preferring the low chaparral so common as we proceed westward from Falfurrias. Their extreme indifference, at times, to the presence of man is comparable in my experience only to that of the Mearns Quail, although when once flushed they do not take such long flights as the latter species.

*Mclopelia asiatica trudeani.* Observed November 26, associated with Western Mourning Doves; also again several days later.

*Asio wilsonianus.* One observed March 4 perching in an oak tree growing near the Los Olmos Creek.

*Otus asio mcalli.* Found only along the Los Olmos creek, where an adult was secured December 17, and several others seen on later dates.

*Colaptes cafer collaris.* During several years collecting on the Lower Rio Grande, I observed but a single Red-shafted Flicker, whereas here it proved to be a fairly common winter visitant, certainly as numerous as the Northern Flicker, which occurs as a winter visitant throughout southern Texas. A Red-shafted Flicker, shot December 25, although undoubtedly a female, possessed all the sex markings of the male bird.

*Phalaenoptilus nuttalli nitidus.* A Poorwill, probably of this form, was heard in the early evening of November 29.

*Muscivora forficata.* The first Scissor-tailed Flycatchers appeared March 23, seemingly a very late date for this latitude.

*Corvus brachyrhynchos brachyrhynchos.* No Crows were observed until March 8, when they appeared in numbers and were numerous during the balance of my stay. Crows are apparently of irregular occurrence in the Lower Rio Grande Valley, where I never was

fortunate enough to observe them; so I presume their normal southern extension in Texas must find its limit somewhere between the Los Olmos and the Rio Grande.

*Icterus melanocephalus auduboni*. Fully as abundant resident here as in the Lower Rio Grande Valley, and observed frequently throughout my stay. The Los Olmos creek bottom was a favorite locality with them, where I would sometimes come across six or more in a single tramp.

*Euphagus cyanocephalus*. The prevailing "blackbird" during the winter months here. About Brownsville its numbers are insignificant at any season compared to the next species, Cowbirds or Red-winged Blackbirds.

*Meqaquiscalus major macrourus*. Although this locality is fully forty miles inland, the Great-tailed Grackle proves not uncommon; however, it is seldom that I observed more than one pair at a time.

*Passerherbulus lecontei*. Noted only between December 5 and 14. During this period it was not uncommon in the only place I was able to find it in—a low damp spot of perhaps two acres extent, in a large meadow. This same locality was largely resorted to by Savannah and Grasshopper Sparrows, making it somewhat difficult to determine the particular species as a bird flushed. However, the Leconte Sparrow is the weakest on the wing of any of the forms referred to; also when flushed in the late afternoon it would occasionally alight in one of the dwarf retamas (*Parkinsonia aculeata*) that fringed the wet area, when it could be easily distinguished by the rufous-brown nape. I was never able to record this bird from the Lower Rio Grande Valley, although this record points to the probability that the species is only a transient near Falfurrias.

*Spizella pusilla arenacea*. The Western Field Sparrow is a most abundant winter visitant about Falfurrias, being present in numbers when I arrived, and not disappearing until after March 15. It resorted to fence rows, weed grown roadways and gardens, associating with the numerous species of sparrows found here at that season, including the Clay-colored Sparrow.

*Peucaea cassini*. Found in limited numbers, usually confining its activities to the immediate vicinity of groups of pad-cactus that grow along the roadways, from which it was flushed with great difficulty.

*Arremonops rufivirgatus*. Confined to underbrush growing along the Los Olmos creek, where individuals were now and then to be seen, usually in the act of disappearing into the dense tangles of elematis.

*Pyrhuloxia sinuata texana*. Is a common resident of this region, largely replacing the Gray-tailed Cardinal, the latter being mostly confined to the vicinity of the Los Olmos creek. With the advent of the nesting season the Texas Pyrrhuloxia loses much of its shyness and resorts to the neighborhood of human habitations, where along with the Western Mockingbird and Curve-billed Thrasher its song is a most striking feature in the advent of spring.

*Calamospiza melanocorys*. Winters in enormous numbers. Was still present in small flocks as late as April 8, when many of the males had assumed the nuptial plumage.

*Virco griseus micrus*. The only vireo noted here. Quite abundant along the Los Olmos creek throughout the period of my stay.

*Vermivora ruficapilla ruficapilla*. One record: A bird taken December 19, near the Los Olmos creek. Was in the company of numerous Ruby-crowned Kinglets.

*Oreoscoptes montanus*. A lone bird, shot as it perched on a pad-cactus growing along a roadway was the only record. It was seemingly some distance from its normal habitat, as no sage brush is found in this section.

*Toxostoma longirostre sennetti*. Strictly confined to the vicinity of Los Olmos creek in this part of Brooks County, where specimens were secured on December 1 and others observed at various later dates.—AUSTIN PAUL SMITH.

**Mourning Dove in the Lower Yakima Valley, Washington.**—In the lower Yakima Valley the Mourning Doves (*Zenaidura macroura*) appear to have made a blunder in migrating this year. Doves are more scarce than in the past four seasons, and so far I have located only one nesting pair in this neighborhood. Winter was steady, with the ground covered with snow until the last week in January, when the weather moderated. During this thaw doves appeared in small flocks. About February 1 winter weather returned, and no more doves were seen until May 5, since which time they have been seen daily, but not as numerous as usual.—CLARENCE HAMILTON KENNEDY.

**A Correction.**—A female duck taken by the writer at Colnett, Lower California, April 8, 1912, and recorded as *Chaulelasmus streperus* (CONDOR xv, 1913, p. 21), was wrongly identified, being in reality a Baldpate (*Mareca americana*).—G. WILLETT.

**A Note on the Plumage of the Linnet.**—While looking up fruit prospects near Madera, California, April 9, 1913, I noticed a male Linnet (*Carpodacus mexicanus frontalis*) in a large cage hanging under the porch of a farm dwelling. The brilliant yellow color of the head, throat and rump at once attracted my attention, it being only the second yellow linnet that I had seen in thirteen years observation in the San Joaquin Valley.

Inquiry of the owner elicited the information that he had taken the bird from a nest in his orchard sixteen years ago, feeding it by hand for the first week or two. It was also stated positively that in the first adult plumage assumed by this linnet the colored areas were uniformly yellow, and at no time since had there been a trace of red feathering. Each spring the yellow coloring becomes very pronounced, but appears to gradually fade out as summer advances. This bird has recently become blind but appears to be in perfect health.—JOHN G. TYLER.

**A Winter Home of the Anna Hummingbird.**—I often wonder why so many of us neglect to send in notes which we must realize are of particular interest to others. In the May number of THE CONDOR, I note the enthusiasm Mrs. Charlotte M. Wilder shows upon noting the appearance almost daily, of an Anna Hummingbird in her garden at Ferndale, Humboldt County, California.

This beautiful hummer is a regular winter resident in Humboldt County. Its first appearance is about the 20th of August. From that date on until February or March the Anna Hummingbird (*Calypte anna*) can be seen about various flower gardens, hovering over the brighter flowers or sitting at rest under the leaves of a bush in the shade, very seldom in the sunshine.

On September 8, 1910, I took from the lower branches of a mock orange bush in Eureka a specimen of the Anna Hummingbird. It was an adult, and dissection proved it to be a male bird. Several days after, another of these birds took up residence in the garden, remaining through the winter.

Seldom have I seen two of these birds remain in the same garden at one time. The Allen Hummingbird (*Selasphorus alleni*) can usually be seen about the same flowers in close proximity with *C. anna*.—C. I. CLAY.

**Some 1913 Spring Notes from the Bitter Root Valley, Montana.**—*Sialia sialis*. Eastern Bluebird. On March 10, this spring, I saw an Eastern Bluebird feeding with a flock of Mountain Bluebirds. Being familiar with the former species in Minnesota I could not have been mistaken in the identity as it was closely observed for some time.

*Pisobia bairdi*. Baird Sandpiper. On May 18 I saw two Baird Sandpipers close to a slough. This is my only spring record for Montana, though they are common in fall.

*Steganopus tricolor*. Wilson Phalarope. On June 7 I collected an adult female of this species. This is the only record for the valley as far as I know.—BERNARD BAILEY.

**The White-tailed Kite near Palo Alto.**—On March 17, 1912, I observed a pair of White-tailed Kites (*Elanus leucurus*) at "Ravenswood," a place about three miles northwest of Palo Alto. These birds circled around several times and did not seem at all wild. They uttered their peculiar cry continuously. About two weeks later I noticed a kite about a mile from this spot. The bird was on a post in the middle of a marsh and was very shy.

On April 2, 1913, I noticed a White-tailed Kite about twenty miles north of Santa Barbara. This bird was fairly tame.—HOWARD W. WRIGHT.

**Nighthawk Drinking.**—While standing near a water trough last night (August 25, 1913), a Texas Nighthawk (*Chordeiles acutipennis texensis*) came and drank like a bat. Dusk was just beginning to come on and as near as I could see, the nighthawk just dipped its lower mandible in the water as it passed, rippling the surface of the water a little. In two or three minutes it, or another individual of the same species, came and drank as before.—FRANK STEPHENS, Julian, San Diego County, California.

# THE CONDOR

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HARRY S. SWARTH, Associate Editor

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## EDITORIAL NOTES AND NEWS

It is an undisputed fact that the waterfowl of California are rapidly decreasing in numbers. Even such species as the Mallard and Cinnamon Teal, which used to breed numerous in many parts of the state, occur no longer in summer in much of their former breeding range. It is of very great importance that each ornithologist in the state place on record what he has learned in regard to our native game birds. If the material is of sufficient quantity to warrant a general article in *THE CONDOR* it ought to be thus presented. But even if only a few lines can be offered, these should be sent in for publication, as a field-and-study note. Such items as the following will constitute valuable additions to our knowledge: Exact dates of nesting, numbers of eggs or young, manner of nesting, time of donning eclipse plumage in ducks, food of young and of adults, exact dates of arrival and departure in the migratory species.

Mr. A. B. Howell has undertaken the preparation of a summary of all that is known concerning the birds of the Santa Barbara Islands. This will appear in due course of time as one of the Cooper Club's *Avifauna* series. Mr. Howell invites all observers who have Island information as yet unpublished to either place it on record at once, or send in their manuscript notes to him—in either event making their knowledge available in time to be incorporated in his forthcoming treatise.

Messrs. Witherby & Company have been appointed European agents for "The Emu", the organ of the Royal Australasian Ornithologists' Union, and copies of that publication can now be obtained at 326, High Holborn, London.

Dr. Reuben M. Strong, of the University of Chicago, is at work upon a monograph of the anatomy of the Tubinares. Material is especially desired which is of a nature to be used in dissecting the soft anatomy of the Pacific albatrosses. Correspondents in a position to furnish such material should inform Dr. Strong of the fact.

Students of western birds will be interested to know that the United States Biological Survey is resuming its field work in Arizona. Mr. E. A. Goldman has been carrying on work there the past summer under the auspices of the Bureau; and Mr. E. W. Nelson, who is in charge of the biological investigations of the Survey, will take the field for a time this fall. We may look forward to a final report upon the fauna of Arizona, compiled along similar lines to the excellent state reports already put out for Texas, Colorado, and other western areas.

A field party from the California Museum of Vertebrate Zoology returned on August 25 from three full months of zoological exploration in the coast district of California north from Marin County to the Yolla Bolly district of Trinity County. The party consisted of Mr. Walter P. Taylor, in charge, with Mr. Charles L. Camp, Mr. Alfred C. Shelton, and Mr. George Stone, of the University of California, as assistants. Mr. G. F. Ferris, of Stanford University, accompanied the expedition in the interests of Prof. V. L. Kellogg, for the purpose of gathering bird and mammal parasites. The results of the season's work, as far as now apparent, consist in a greatly increased knowledge of the distribution of the vertebrate elements in the faunal areas traversed.

Since Mr. W. P. Taylor's report in our May issue (pages 125 to 128) of accomplishments in California in the line of wild life conservation, the fortunes attending this worthy cause have been varied. For reasons neither explained, nor readily inferred, the Governor failed to sign a number of the important bills passed by the legislature. Thus out of the list of 13 items as given by Taylor, numbers 5, 6, 7, 8, 10, 11, 12 and 13 were lost, save that the separate bill included under number 13, providing protection for Sea Otter alone, was signed. The hotly contested no-sale and no-shipment bill *was* signed; but enemies of the regulation, namely the San Francisco Hotelmen's Association, have subsequently succeeded in securing the requisite number of signatures to the appropriate petitions invoking the referendum on this law. The enforcement of the measure will therefore be

postponed at least until the next general election, in November, 1914, when the people of California will be called upon to vote directly upon the issue.

Meanwhile, through the enactment of the Federal migratory bird law, California is likely to secure in no small part what it was hoped to gain through state legislation. The details of the Federal regulations have been in the hands of a most competent committee, consisting of T. S. Palmer, A. K. Fisher and W. W. Cooke, of the United States Biological Survey. The regulations as finally announced in a Circular of the Survey will go into effect October 1, 1913.

As regards California birds the following restrictions will now become operative. A five-year closed season on: Band-tailed Pigeon; all Cranes; Swans; all Rails; Curlew and all shorebirds *except* Black-bellied and Golden Plover, Wilson Snipe and both species of Yellowlegs. The open season on ducks and geese will extend from October 15 to January 16, thus cutting the shooting season much shorter at the spring end, as compared with the provisions of the State law. The open season for Black-bellied and Golden Plover, Wilson Snipe and both Yellow-legs

will be from October 15 to December 16. The Coot and Florida Gallinule will be subject to an open season from September 1 to December 1. The latter two species thus become recognized as game birds.

These federal regulations are of the utmost importance as a step toward retarding the spectacular diminution of our game resources. But we must not rest here. Much wider accomplishment is necessary, especially in the line of public education, if the stock of game birds on the Pacific Coast is to be preserved in the face of the present high rate of immigration and consequent enormously increased toll levied upon all of our natural resources.

HERBERT BROWN, one of the few resident ornithologists of Arizona, died at his home in Tucson, May 12, 1913. He was 65 years old at the time of his death, having been born in Winchester, Virginia, March 6, 1848. He was twice married and left a widow and one son.

In 1883 he located in Tucson where he made his home throughout most of the remainder of his life. During the early years of his residence in Arizona he lived a more or less adventurous life, making long pros-



Fig. 51. HERBERT BROWN, HOLDING ELF OWL; PHOTO TAKEN BY WILLIAM L. FINLEY AT TUCSON, ARIZONA, IN THE SPRING OF 1910

pecting trips into the desert mountains of southern Arizona and northern Sonora. In those days the Apaches were a constant danger in that region and Mr. Brown and his companions had a number of narrow escapes from them, as well as from death by thirst on the arid plains. Later he became interested in newspaper work in Tucson and for many years was reporter, editor or owner of various journals there, and was one of the best known and respected men among the pioneers of the community. He had the instincts of a born naturalist and was a keen observer of nature long before he gained any definite knowledge of the subject.

In 1883 I spent several months in Tucson and within a short time after my arrival met Herbert Brown. He expressed the greatest pleasure to have the opportunity to learn something about birds, saying that he had always been much interested in them but had never before met anyone who could give him any information on the subject. He soon learned to make good skins and became an enthusiastic field collector, making trips whenever he could spare a little time from confining duties. He soon came to know local birds very well and made a collection of skins which later he presented, with other scientific material, to the Museum of the University of Arizona.

He told me of having seen "Bob-White" quail on grassy plains south of Tucson during some of his early trips, and as a result of my interest in the matter he afterwards secured and sent to Mr. Ridgway the first specimen of the bird afterwards described as *Colinus ridgwayi*. Some years later while Superintendent of the prison at Yuma, he collected the type of the mountain lion frequenting the delta of the Colorado, *Felis aztecus browni* Merriam. The common name of *Melospiza melodia rivularis*—Brown's Song Sparrow of Lower California—was dedicated to him by his friend, Walter E. Bryant.

I found in Herbert Brown a warm-hearted friend and delightful companion. He enjoyed doing kindly acts for others, and so had many friends among both scientific and non-scientific men. He was curator of the Museum of the University of Arizona from the time it was founded, and, in addition, at the time of his death, he was President of the Audubon Society of Arizona and Clerk of the Superior Court of Pima County.—E. W. NELSON.

## COMMUNICATION

### COLLECTING IN PERU

Editor THE CONDOR:

Again calling to mind that long postponed promise to write to you, I lay aside a couple of finished lapwings, push still farther away a waiting grebe and ibis, and commence. We are in the shooting lodge of the Cerro de Pasco Mining and Railway Company, located on the "Roof of the World", to use the language of the railway folders. We are at

13,000 feet elevation here, and the snow-capped Andes just across the lake seem only small hills, as compared to the view of them from the seaward side.

Perhaps the most interesting view to us is the early morning outlook from the door. In the foreground is the flock of llamas that come to roost every evening about 100 yards from the door. Then a gentle slope of a mile to the lake, smooth as glass and with a flock of feeding flamingos on the edge; beyond that the abruptly rising mountains, capped with snow and showing clear-cut against the sky. During the day the llamas feed down to the lake, so that when snipe shooting one has to be careful that a llama is not incidentally in range. The carrying power of a charge of powder is seemingly much greater here than at sea level, for I have made some shots that I would not even have attempted below. A couple of flamingos were stopped last night from a flock that must have been from eighty to a hundred yards away. It seems somewhat odd to see flamingos standing in a pond being peppered with hail stones, but it frequently happens here. One's remembrance of wading into tropical lagoons after them, with nothing on but drawers and undershirt, fades slowly from mind when they fly past with the snow-covered hills a mile away, and a cold sleety drizzle chilling one as he sits in a boat watching them.

And the mudhens! How changed from the familiar California mudhen. The first one I shot seemed so much bigger than ours, though of the same general appearance, that I supposed I had in hand the Giant Mudhen that is listed as occurring in Peru; but some days later, while slowly rowing along an island bordered with tules, a really big mudhen rose from the edge and flew out onto the lake. It looked so big when rising and flapping on the water that I would have shot, but my wife's head being in the way, refrained, and so was compelled to row after it when it settled a half mile out on the choppy lake.

Before I got to it, though going down the wind, I was puffing worse than I used to do on the choppy sea off Point Pinos when chasing a pair of Xantus Murrelets that would persist in swimming as fast as I could make the boat travel, until I was thoroughly wind-ed, when they would turn broadside on and show a pair of shark fins in place of the eoveted murrelets. But I got this mudhen, and another yesterday, and giants they are! While not as large as a *large* honker, they will certainly surpass the majority of the geese that winter in California. And tough skinned! I'd sooner skin an eagle. I skinned the first one but my cholo assistant skins any others that we get. The middle toe and claw of the one

skinned today measured  $6\frac{1}{4}$  inches, and looked more.

Talking of big things, as the right of a Californian, the frogs here are certainly in that category. When talking with the manager of the company in Lima, he told me that they were as big as my head. His secretary later told me that they stretched three feet or so from tip to tip; then a conductor on the road had measured one that went twenty-six inches from one toe-tip to another, but when I saw my first one in the lake I believed them all. It came to the surface, stuck up a head like a turtle's, took a breath the same way, and slowly swam downward as we rowed over the spot. Had I had a boat hook I verily believe that it could have been hauled to the surface, as many a turtle has been, with the hook caught under the chin.

. . . Land birds are few. One yellow finch with a pleasant voice wakes us every morning, singing close by the window. It seems somewhat strange to find a species of woodpecker common up here in the treeless and shrubless hilltops, but one is often seen, calling from some rocky point or flying off over the hillsides.

We expect soon to get back to sea level, where shearwaters, petrels and boobies will take the place of flamingos, ibises and mud-hens.

Sincerely,

R. H. BECK.

Lake Jurin, Peru, April 17, 1913.

#### PUBLICATIONS REVIEWED

A "CHECK LIST OF THE BIRDS OF THE SEQUOIA AND GENERAL GRANT NATIONAL PARKS."—A briefly annotated list with the above title appears in a 24-page circular of "General Information Regarding Sequoia and General Grant National Parks," issued from the Office of the Secretary, Department of the Interior. This list has been printed, in almost identical form save for typographical errors, in the circular for at least the past two seasons, to the reviewer's knowledge, 1912 and 1913, pages 7 to 15 in the former, 10 to 17 in the latter.

The list is notable for its length, 184 species being enumerated. The annotations are limited to one- to six-word comments upon seasonal status and relative abundance. The contribution is further striking in the large proportion of improbable occurrences, thus furnishing the stimulus for the present critical review.

A provoking thing about the list is its presentation in a government publication, showing unmistakable evidences of having passed the official scrutiny of ornithological authorities at Washington. And yet it has

failed of that censorship which must ever be exercised in regard to the output of amateur observers, if our literature is to be kept up to scientific standard.

We note a number of generic names as well as subspecific combinations, which give no hint of derivation from the standard A. O. U. Check-List. The tell-tale *Tyto* (for the Barn Owl) with little doubt in our minds emanates from a certain Washington office. Other significant evidence is afforded by *Balanosphyra*, *Accipiter velox pacificus*, *Horizopus*, and *Sayornis nigricans semiaters*. In fact the guilt for allowing such a questionable lot of records to slip into print would seem not difficult to fix!

The two parks named are in the Sierra Nevada of Tulare and Fresno counties, California. The more dubious of the records are as follows: *Florida caerulea*, "rare winter visitant" (no previous record for California!); *Zamelodia ludoviciana*, "very rare"; *Sialia mexicana anabelae*, "very rare summer resident"; *Dendroica occidentalis*, "winter migrant"; *Chaetura vauxi*, "summer resident"; *Pinicola enucleator californica*, "common resident"; *Junco oreganus shufeldti*, "winter migrant" (no satisfactory record for the State!); *Bombicilla cedrorum*, "common summer resident"; *Pipilo maculatus montanus*, "winter visitant"; *Aimophila ruficeps ruficeps*, "winter visitant".

The list is stated to have been "compiled and identified by Walter Fry, ranger in charge." The reviewer has corresponded with Mr. Fry at some length in an effort to secure scientifically acceptable verifications of some of the more important identifications. The information was elicited that either the "species in the list were determined by sight identification at very close range," or that specimens were shot but in no case saved—an extremely unfortunate circumstance, especially as regards the "Little Blue Heron."

It should here be stated that the author of the list is well known to be an efficient officer, and a man or more than ordinary accurate as an observer; but even so, who of us would trust himself to put upon record such extraordinary things unless backed up by specimens preserved?

Is it not incumbent upon naturalists in authority, especially those in connection with the governmental departments, to properly edit, or otherwise render innocuous, the contributions from enthusiastic amateurs? The latter are increasing in numbers—a very desirable thing—but our science will suffer just in proportion as their questionable observations are allowed to assume apparently authentic position in our literature.—J. GRINNELL.

FIFTY COMMON BIRDS OF FARM AND ORCHARD. Prepared in the Bureau of Biological Survey. U. S. Dept. Agric., Farmers Bull., 513, pp. 1-31, 50 figs. in text. (Rec'd May 23, 1913.)

The object of the recent bulletin by members of the United States Biological Survey entitled "Fifty common birds of farm and orchard" is stated in the introduction to be "to serve the very practical purpose of enabling our farmers and their boys and girls to identify the birds that frequent the farm and orchard". Certainly this bulletin comes as near fulfilling this purpose as any yet published.

The introduction is given over to a discussion of the relation of birds to insects and to methods of encouraging birds. Some additional evidence to that already published, as to the capacity of birds' stomachs, is to be noted. The record of 72,000 seeds found in the stomach of a single duck taken in Louisiana in February is particularly noteworthy. Under a discussion of bird enemies there is an arraignment of the house cat, the first conspicuous one we have noticed in any publication of the Biological Survey.

The text treatment is brief and made up of an account of the size, range, habits and economic status of the fifty common species. Constant reference to Farmers Bulletins and Biological Survey Bulletins treating more fully of the birds under discussion are given. The most conspicuous feature of the accounts, as well as the most conspicuous thing about the whole bulletin, is the small colored illustration of each species. These excellent likenesses were executed from nature by the well-known bird artist, Louis Agassiz Fuertes.

To the average citizen or person interested in birds this bulletin will appeal more than any other in the series; for in the identification of birds it is on illustrations rather than on technical descriptions that ordinary people depend. To see a bird in the field and then attempt to find its description in a book is difficult enough for the student and is seldom undertaken by the uninitiated. To see a bird in the field and find its description by comparing it with a good colored illustration is within the range of anyone's accomplishment. Hence this bulletin furnishes a useable handbook for the common run of people interested in the subject. As this type of bulletin is too expensive for individuals, and usually too expensive for state departments to attempt, the United States Department of Agriculture is to be complimented all the more on the score of having produced a work which there is little possibility of duplicating.—H. C. BRYANT.

## MINUTES OF COOPER CLUB MEETINGS

### SOUTHERN DIVISION

JULY.—The regular monthly meeting of the Southern Division was held at the Museum of History, Science and Art, Thursday evening, July 31, with President Law in the chair and the following members present: Messrs. Daggett, Fitzpatrick, Law, Layne, Rankin, Rich, Storer, Van Rossem, and Swarth. Mr. H. A. Edwards was a visitor. The minutes of the June meeting were read and approved, followed by the reading of the Northern Division minutes for May. The name of Mr. Fred H. Carruthers was proposed for membership by W. Lee Chambers. There being no further business the remainder of the evening was devoted to an inspection of the Museum, and to hearing the informal reports of such members as had been engaged in field work during the past few months. Adjourned.—H. S. SWARTH, *Secretary*.

AUGUST.—The monthly meeting of the Southern Division was held at the Museum of History, Science and Art, Thursday evening, August 28, with the following attendants: President Law in the chair, and Messrs. Cookman, Daggett, Howell, Hubbs, Kimball, Rich, Van Rossem, Zahn, and Swarth. Mr. H. A. Edwards was a visitor. The minutes of the July meeting were read and approved. One new member was elected, Mr. Fred H. Carruthers, proposed by W. Lee Chambers. Three new names were presented: Mr. Guy Love, Oberlin, Kansas, proposed by H. W. Carriger; Mr. L. Brooks, New Bedford, Mass., by W. Lee Chambers; and Mr. Paul L. Radir, Los Angeles, by H. S. Swarth.

The secretary read a paper entitled "An Account of the Mallard Duck as Occurring in California," by J. Grinnell and H. C. Bryant, this being a sample chapter of a work now in progress by the authors dealing with the game birds of the state.

Mr. Kimball exhibited some skins of hummingbirds from Colima, Mexico, together with a few other Mexican birds. Adjourned.—H. S. SWARTH, *Secretary*.

SEPTEMBER.—The regular monthly meeting of the Southern Division was held at the residence of Dr. L. H. Miller, Sunday afternoon, September 28, with the following attendance: President Law in the chair, and Messrs. Chambers, Daggett, Esterly, Grey, Layne, Miller, Rich, Van Rossem, Welch, Wood, and Swarth, and Mrs. Harriet Williams Meyers. Those present other than members were Mrs. Miller, Mrs. Chambers, Mrs. Esterly and Miss Van Deusen, and Messrs. J. W. Eggleston and H. A. Edwards.

The minutes of the August meeting were read and approved. New members were elected

as follows: Guy Love, Oberlin, Kansas; L. Brooks, New Bedford, Massachusetts; and Paul L. Radir, Los Angeles. New names presented were: C. B. Lastreto, San Francisco, and H. A. Edwards, Los Angeles, proposed by W. Lee Chambers; Prof. J. W. Eggleston, Occidental College, Los Angeles, proposed by Dr. Esterly and Dr. Miller; Mr. W. C. Bradbury, Denver, Colorado, proposed by H. S. Swarth. The resignation of Mr. John J. Boyce was read and accepted.

The secretary read a communication from Mr. W. Leon Dawson, giving a brief report of the progress made on the "Birds of California," and suggesting definite ways in which the promised co-operation of the Club in the production of the book would be helpful at the present time. After careful consideration and discussion of the questions involved, the secretary was instructed to communicate further with Mr. Dawson and with the Northern Division, before any definite action be taken by the club.

Mr. Chambers produced a periodical containing a short article (reprinted from the *Detroit News Tribune*) entitled "Henry Ford—'Savior of Birds'", which was read by the secretary. The motion was then passed that the secretary be instructed to write to Mr. Ford expressing the appreciation and commendation of the club for his generous support of the McLean migratory bird bill.

During this meeting the members were assembled on Mr. Miller's broad, shady veranda, directly on the brink of the Arroyo Seco, with its profuse vegetation and abundant bird life. A drinking fountain beside the porch was continually visited by birds during the afternoon, small flocks of Green-backed Goldfinches and an occasional Anna Hummingbird, Brown Towhee, and San Diego Wren appearing from time to time, while from a distance could be heard the call of the Valley Quail and the song of the Pasadena Thrasher. A rather abrupt cessation of the business before the meeting was caused by the appearance of refreshments, but it was late in the afternoon before the members finally disbanded. Toward the end of the meeting Mr. Daggett got in telephonic communication with Mr. W. H. Osgood, of the Field Museum, who had but just arrived at the Hotel Alexandria, too late to make the long ride from town to where the meeting was being held, but who might to this extent be considered as in attendance.

A vote of appreciation was tendered to Mr. and Mrs. Miller for their most enjoyable hospitality. Adjourned.—H. S. SWARTH, *Secretary*.

#### NORTHERN DIVISION

MAY.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, California, on May 15, 1913, at 8 p. m. with President Carriger in the chair and the following members present: Mrs. Burnham, the Misses Libby and Wythe, Dr. Burnham, and the Messrs.

Bryant, Carriger, Finley, Grinnell, Heine-mann, Hunter, Storer, W. P. Taylor, and R. Wheeler. Mesdames Allen and Finley, Miss Wythe, and the Messrs. Parker, Rankin, and Sampson were present as visitors. For the convenience of some of those present the papers of the evening were placed first on the program.

Mr. J. S. Hunter of the California Fish and Game Commission spoke on the subject of "Game Conservation in California." He first outlined the organization of the Commission and mentioned briefly the work of the fish hatcheries and then spoke in detail of the efforts of the Commission to introduce and propagate game birds. The work with the Ring-necked Pheasant has been most successful, as colonies have become established in several parts of the state. With the Silver and Golden Pheasants and the Hungarian Partridge the work to date has not been successful. The Bob-white has become established in some localities, and it is now planned to introduce the Prairie Chicken. After covering these matters Mr. Hunter went on to discuss the qualifications and work of the field deputies and gave some examples and statistics in regard to the violations of game laws.

Mr. William L. Finley, now State Game Warden of Oregon, then spoke of the work of fish and game protection and propagation in that state. He dwelt on the problems of game conservation, of the need of game refuges, and of the methods of enforcement of the game laws, pointing out that it is better, especially in the sparsely settled districts, to educate the people into obeying rather than enforcing obedience by arresting violators. Oregon has recently adopted a new game code, enacted a no-sale-of-game bill, adopted a \$25 alien's license, a trapper's license and other measures recommended by authorities in game conservation.

After the speakers had concluded, the regular business of the meeting was considered. The minutes of the April meeting were read and approved and the minutes of the Southern Division for April were read. The following were elected to membership: E. P. Rankin, El Monte, Calif.; Geo. F. Sykes, Corvallis, Oregon; F. J. Smith, J. Bagley, and B. M. Marshall, Eureka, Calif.; E. A. Dial, Santa Barbara, Calif.; and E. E. Lusher, Van Nuys, Calif. New names were proposed for membership as follows: Amelia Sanborn Allen, Berkeley, Calif., proposed by J. Grinnell; and from the Southern Division: H. C. Ohl, Los Banos, Calif., proposed by H. C. Bryant.

Mr. W. P. Taylor, Chairman of the Permanent Committee on the Conservation of Wild Life, reported the results of the efforts of the California Associated Societies for the Conservation of Wild Life at the recent session of the California Legislature, which had just adjourned, and mentioned the bills which were up before Governor Johnson for his signature. Adjourned.—TRACY I. STORER, *Secretary*.

**For Sale, Exchange and Want Column.**—In this space members of the Cooper Club are allowed one notice in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, *Eagle Rock, Los Angeles County, California*.

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A Magazine of Western  
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Volume XV    November-December, 1913    Number 6



COOPER ORNITHOLOGICAL CLUB



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# THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XV

November-December, 1913

Number 6

HENRY BARROILHET KAEDING

By JOSEPH MAILLIARD

WITH PHOTOGRAPH BY W. OTTO EMERSON

AN ORGANIZATION such as the Cooper Ornithological Club may have many members, but few *workers*, and when the ranks of those who work are thinned the loss is great. While the younger members, and those living at a distance, may have an indefinite feeling of loss when one of these is taken away, it is only the older members who have in mind the Club's earlier struggles for existence who can understand the full meaning of such loss. Only the personal friends of men like Henry Barroilhet Kaeding, whose death occurred in Los Angeles on June 12, 1913, realize what his absence means to us, or fully appreciate the results of the deep interest he showed in Club matters and the amount of work—some of which many of us would call drudgery—cheerfully performed by him to promote the Club's welfare and to extend the knowledge of the wonderful bird-life on this side of the North American continent.

Henry B. Kaeding, or "H. B.", as many of us familiarly addressed him, was born in San Francisco in 1877. He was the son of one of the city's pioneer merchants, "Charlie" Kaeding—a name at one time well known to most lovers of rod and gun on the Pacific Coast. While his more youthful education was acquired in the public schools his natural leaning toward scientific pursuits led him to enter the California School of Mechanical Arts, where he remained for some time. After this, with the exception of a few months with the then (and present) city chemist, he continued his own education persistently and independently.

At what age his love of natural history first asserted itself the writer does not know, but from 1892 to 1896 he was mining and studying in Amador County, California, and it was during this period that he commenced making a study and a collection of the birds of his immediate vicinity. His records of this period, which have been in the writer's possession for some years, show that he first commenced systematically to record the ornithological specimens taken by his brother Charles and himself in the later part of 1894. Through the exchange of some of

these specimens he became acquainted with the late Chester Barlow, and it was on account of the friendship which ensued that he was led to join the Cooper Ornithological Club in 1895.

The Amador County mine not having turned out as well as he had been led to expect, Kaeding accepted an invitation to join A. W. Anthony on a trip to the South Pacific islands. A second trip was made with Mr. Anthony in 1897.

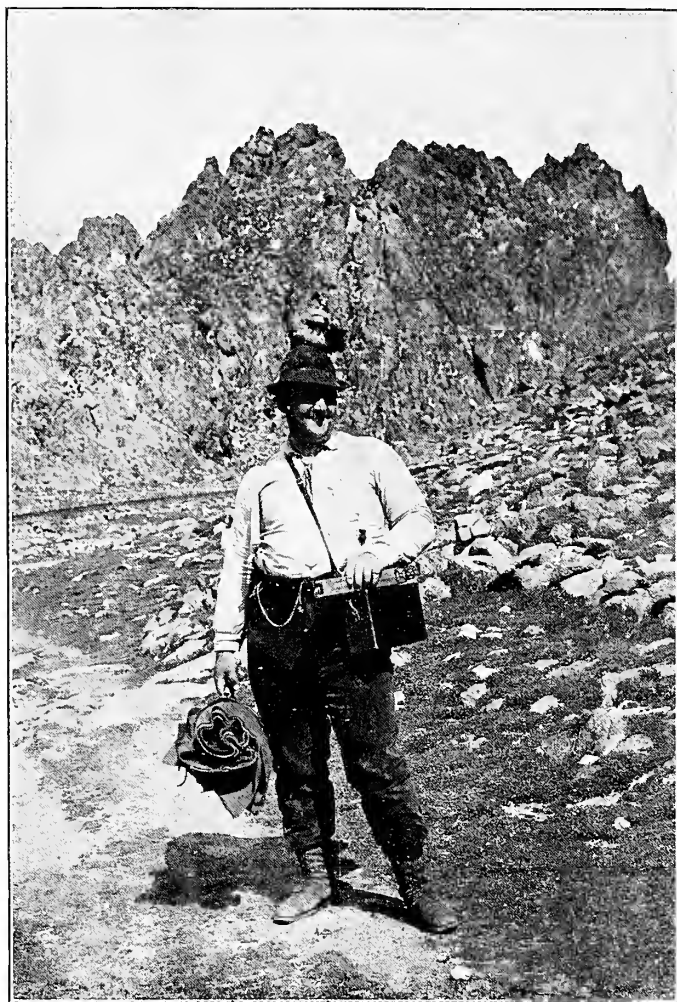


Fig. 52. HENRY B. KAEDING; PHOTOGRAPH TAKEN BY W. OTTO EMERSON ON THE FARALLON ISLANDS IN JUNE, 1903. (See Kaeding's article in *Condor* for September, 1903, pages 121-127.)

On this latter expedition the schooner was wrecked in the nighttime off Magdalena Bay, and the party escaped from the sinking vessel through the breakers in a small boat, saving but few of their possessions and specimens, landing on a desolate beach in scant clothing, with but little if any food, and with a sixty-mile walk in prospect to the nearest point of succor! Much was added to our knowledge of the bird life of some of these islands by the two expeditions made

to them, and several new species and races were discovered and described.

After several ventures in the metallurgical or mining line, maintaining an office in San Francisco with his brother for a while, and also doing some work in Plumas County, California, Kaeding was induced to go out to Korea, as metallurgist, by the Oriental Consolidated Mining Company. There he stayed for three years. After this he spent several years in charge of mining properties on the west coast of Mexico, and finally went to Nicaragua, staying there some two years. It was there that his health became affected, the climate not agreeing with him at all. He returned to the United States for treatment, but it was too late, as his heart had become involved.

On his way back to California he visited Washington, D. C., to meet some of the ornithologists there, with whom he had from time to time been in correspondence; but most unfortunately most of them were away on vacations or out on field duty, much to his regret. Mr. A. B. Howell, of Covina, California, is identified with the preparation of a work upon North American birds, and Mr. Kaeding was to have supplied him with notes that would have greatly enhanced its value.

The accuracy of Kaeding's mind is well exemplified in the "Ten-year Index to the Condor," successfully compiled by him in 1908, and brought to publication early in 1909 as *Pacific Coast Avifauna* Number 6.

Kaeding was a jovial comrade in the field, never afraid of hard work, a firm supporter of the Cooper Ornithological Club, and was ever dreaming of the time when he would "make his pile" and do all sorts of things for the "C. O. C." Why he should have been taken so early from our midst is one of those things no man may know. We wonder—but we must accept.

## NOTES ON THE EGGS OF THE NORTH AMERICAN LIMICOLAE, REFERRING PRINCIPALLY TO THE ACCIDENTAL VISITORS

By HERBERT MASSEY, M. B. O. U.

I WAS MUCH interested in Dr. Shufeldt's paper on the North American Limicolae in *THE CONDOR* for July-August, 1913, and trust that he will find time to give descriptions and plates of the eggs of the rarer Limicolae, especially of those species that figure in the B. O. U. list, of the eggs of which we have few examples in England. Of the European species given by Dr. Shufeldt, and which are almost accidental visitants to America, I think he has been hampered by having too little data to work on; and on this account I venture to enlarge upon what he has already written, thinking that it may interest some of our readers who may wish to know the extreme range of variation in the eggs of this the most interesting group of birds—the Limicolae. These notes are taken from the most extensive private collection of eggs of the Limicolae in England.

**Phalaropus (or Steganopus) tricolor.** Wilson Phalarope.

**Phalaropus fulicarius.** Red (or Gray) Phalarope.

**Phalaropus hyperboreus (or Lobipes lobatus).** Red-necked (or Northern) Phalarope.

As regards the ground color of the eggs of the three Phalaropes, I find those of *P. tricolor* to be the least variable, being mostly different shades of clay color, the pale stone color and the various shades of olive, as in the other two species,

being absent. The surface markings also do not show the same range of color, being chiefly chocolate-brown and brownish-black, while the patterns of the markings from minute specks all over the egg to great blotches are equally as variable as in the other two species. On many of the eggs of *P. fulicarius* and *P. hyperboreus*, specks and blotches of violet gray are to be found, more especially on those with the stone-colored and light-olive grounds. The bigger blotches on the eggs of all the three species are generally to be found on the large end and sometimes cover the whole of it. The eggs of *P. fulicarius* and *P. hyperboreus* have little or no gloss, while the eggs of *P. tricolor* are distinctly glossy. I think Dr. Coues is mistaken in saying that the eggs of *P. fulicarius* cannot be distinguished from those of *P. hyperboreus*. It is true that small eggs of *P. fulicarius* cannot be distinguished from large eggs of *P. hyperboreus*, but in a large series such as I have before me (19 sets or 76 eggs of the former and 50 sets or 200 eggs of the latter) the difference is easily seen. Measurements: *P. tricolor*, 1.3 x .9 in.; *P. fulicarius*, 1.25 x .85; *P. hyperboreus*, 1.15 x .82 in. Number of eggs, 4. Eggs pyriform in shape.

#### **Recurvirostridae.**

I am not able to give any description of the American forms of Stilt and Avocet, but judging from Dr. Shufeldt's figures they must very closely resemble the European forms both in size and color and markings, but would hardly fit in with Dr. Coues' description. The eggs of *Himantopus avocetta* are distinctly larger than those of *Himantopus melanocephalus*, and while the markings are very similar on the eggs of both species, and in many cases the ground color also, the eggs of *H. avocetta* appear in a series to have a richer, warmer appearance. Measurements: *H. avocetta*, 2 x 1.5 in.; *H. melanocephalus*, 1.7 x 1.25. Number of eggs nearly always 4 in *H. avocetta*, and 3 to 4 in *H. melanocephalus*. The eggs of both species have little or no gloss. They are pyriform in shape.

#### **Scolopax rusticola.** European Woodcock.

Very few authors seem to have paid sufficient attention to the eggs of this species, probably from insufficient material. Swann's description as given by Dr. Shufeldt, "pale buff, blotched," etc., is a poor and meagre description of these beautiful eggs. The ground color ranges from the palest cream (nearly white) through deeper cream to pale buff, yellow-buff and the deepest brown-buff (many of the eggs of this latter type having a distinct pink tone), speckled and spotted and blotched with yellow-brown, dark brown and purplish gray. As a rule the eggs in the same set are fairly uniform in the pattern of the markings; but occasionally you get a set with one egg much more marked than the other three, and in many cases you find two distinct shades of ground color in the same set. The number of eggs is invariably 4. Measurements: 1.75 x 1.3 in. The eggs possess a fair amount of gloss, and are rounded ovate in shape.

#### **Scolopax (or Gallinago) gallinago.** European Snipe.

In ground color the eggs of this species show a greater variation than in any other of the Limicolae, and the series I have before me now (50 sets or 200 eggs) certainly baffles description. Swann's description, for a general one, is very misleading if not altogether wrong; and I have certainly never seen an egg of the snipe "pale yellowish with an olive tinge". Here you have the various shades of stone color, pale buff and deep buff, all shades of brown, from the very palest to the rich red (so highly prized by collectors), a deep chocolate, a beautiful pale green (very fugitive), similar to some eggs of the Dunlin and Wood Sandpiper, pale olives and dark olives, a very dark green, and a very light dove gray. The markings are very variable, spots, blotches and irregular thin streaks (chiefly at

the larger end) of varying shades of brown, from a light chestnut to nearly black, with, in many cases, spots of violet gray. The markings in some instances are fairly evenly distributed, but are as a rule chiefly at the larger end, in many cases forming a complete cap. There is a beautiful variety having all the markings at the larger end with the remainder of the egg almost without a speck, and another variety dusted over with fine specks without any large spots at all. Several of the sets show the spiral arrangement of the spots, but this is not as frequent as in the eggs of the Dunlin. The number of eggs is invariably 4. Measurements: 1.6 x 1.1 in. Some eggs show a considerable amount of gloss, though this is usually absent. The eggs are pyriform in shape.

**Tringa (or Pelidna) alpina.** Dunlin.

The eggs of this species resemble those of *G. gallinago* very closely in color, but in comparing a series (74 sets or 296 eggs) with that of *G. gallinago*, one is struck by the greater proportion of the lighter ground colors in the Dunlin, the very deep olives and the very dark browns being almost absent. On the other hand the beautiful light blue-green and the pale buff are rare in *G. gallinago*. The surface spots are chiefly two shades of brown, a rich red and a dark brown, with, in many cases, spots of violet gray. In *T. alpina* it is rare to find the two shades of brown in the same egg as is often the case with *G. gallinago*. The markings are very varied, some eggs dusted all over with tiny specks, others with specks and fair-sized spots, and again others with great blotches of color chiefly at the larger end. The pattern markings on the eggs of the same set are often very dissimilar. Many of the eggs of this species show the spiral arrangement of the spots. The eggs are very glossy, and on this account have a brighter appearance than eggs of *G. gallinago*. I have only one set entirely without gloss. Number of eggs invariably 4. Measurements: 1.35 x .95 inch. The eggs are pyriform in shape.

**Totanus melanurus (or Limosa limosa).** Black-tailed Godwit.

The eggs of this species are not very variable, olive-green and olive-brown, light buffy brown to dark brown without any trace of olive, being chiefly the ground color, while the markings are usually deeper shades of the same color with rarely a few spots of violet-gray, these spots in many cases being very indistinct; but occasionally you find a set quite boldly spotted. The eggs have little or no gloss, and in the same set are very uniform in shape. The markings on the eggs in the same set are usually very similar in character. Number of eggs 4, occasionally 5. measurements: 2.2 x 1.5 in. The eggs are pear-shaped.

**Totanus calidris (or Totanus totanus).** Common Redshank.

The ground color of the eggs of this species does not show any great range of variation, being chiefly different shades of buff, from the very light clay color (often slightly tinged with greenish-olive) to a good deep shade; but occasionally you find a set with a deep rich red-buff ground color, spotted with a rich red-brown which gives them a very handsome appearance. The markings are usually two shades of brown, a rich red and a very dark brown, from minute specks to good big blotches, the latter being often confluent forming a zone around the larger end of the egg. Again, you find a few violet-gray markings, and occasionally a thin irregular hair-line of very dark nearly black-brown, also at the larger end. The markings on the eggs of the same set often show great variation. The eggs have little or no gloss. Number of eggs in set, 4. Measurements: 1.75 x 1.2 in. Eggs pyriform in shape and generally flattened at the top.

**Totanus flavipes.** Yellowshank (or Yellow-legs).

As this is purely an American species I should not have referred to it had

not Dr. Shufeldt surmised that the eggs were similar to those of *Totanus calidris*, the Redshank. They could never be mistaken for eggs of the latter, being smaller, of a different shape, not having the flattened butt so common to *T. calidris*, and are generally richer in their markings, and have a certain style about them that is quite foreign to *T. calidris*. Also they have a very distinct glossy appearance not common to *T. calidris*. Seebohm says of this species: "The fine series of eggs of this species in the Smithsonian Institution vary in ground color from creamy white to pale greyish brown. The surface-spots are dark rich reddish brown, and vary in size from a large pea downwards, many of them becoming confluent and forming large irregular blotches, or occasionally taking the form of streaks. Most of the markings are generally on the larger end of the egg, but on some specimens they are more evenly distributed over the entire surface. The underlying markings are pale grey or greyish brown, and are large and conspicuous. The eggs vary in length from 1.7 to 1.6 inch, and in breadth from 1.2 to 1.08 inch. The eggs are 4 in number and very handsome." This description tallies with eggs I have from the Anderson River. I was somewhat surprised to see that Ridgway makes the eggs of this species larger than those of *T. melanoleucus*, the Greater Yellowshank, being 1.69 x 1.15, as against 1.43 x 1.20 for *T. melanoleucus*.

**Totanus (or Machetes) pugnax.** Ruff.

The ground color of the eggs of this species shows a fair amount of variation, from very light grey stone to drab buff, yellow buff, brown buff, and olive without any brown, and light brown without any olive. They are spotted and blotched with two shades of brown, a good mid brown and a dark chocolate, and violet gray, the dark chocolate markings being usually on the light grey stone colored eggs, and the mid browns on the buffs and olives. Of the spots and blotches many are confluent, the larger blotches being chiefly at the larger end of the egg, though a good many eggs of this species are fairly evenly marked all over. The eggs have a fair amount of gloss, and owing to the prevalence of buff and olive grounds it gives them a rich oily appearance. The eggs in each set usually show a similarity in markings. Number of eggs in set invariably 4. Measurements: 1.8 x 1.2. The eggs are pyriform in shape.

**Numenius phaeopus.** Whimbrel.

The eggs of this species are usually very handsome, though not showing any very great variation in ground color or in the color of the markings. The boldness of the spots and blotches in many cases gives them a splendid appearance. The general color is distinctly olive of varied shades, olive green and olive brown, speckled, spotted and blotched by light and dark shades of the same color and rich brown, curious almost black thin streaks at the larger end of the egg being very common, usually only on one egg in the set, though I have one set with every egg so marked. The violet-gray markings are not so conspicuous; but I have one set with great blotches of this color so deep in tone as to have quite a purple appearance. The markings are often fairly distributed over the surface of the egg, and the eggs in each set even in markings, but in many instances the spots and blotches are on the larger end of the egg. Sometimes the markings are very indistinct and give the egg a blurred appearance. The eggs are flattened at the top. Number of eggs 4, though I have one set of 5 all apparently the product of one bird, as all the eggs are of a peculiar shape, being much narrower and consequently look more elongated. Measurements: 2.4 x 1.55 inches. The eggs have very little gloss and are pyriform in shape.

**Vanellus cristatus** (or **Vanellus vanellus**). Lapwing.

The general ground colors of the eggs of this species are clay of various depths and buffish olive with very black brown markings; but among the eggs of this species there are some wonderful modifications, varying greatly both in color and markings and very difficult to describe. There is the palest grey stone color with very tiny black specks sparingly distributed; a deeper stone color similarly spotted but with a blotch at the butt end; another with a buffish olive ground color so completely dusted over with the tiniest specks of chocolate brown as to almost obscure the ground color; a warm buff fairly evenly spotted with black brown and smeared over with a yellow ocher color; another, greenish olive ground, with markings of blackish brown around the larger end of the egg and with a band of lighter ground color about one-fourth inch from the apex; a lovely deep olive green with enormous blotches of black interspersed with streaks all over the egg; a net brown ground with smallest markings of black brown; and rarely a fine red with darker markings of the same color, a color so absolutely unlike anything that we would expect in eggs of this species as to make one doubt its identity though I know of four sets of this variety in different collections. Generally the markings on the four eggs of a set show a great similarity to each other, but often there is one egg in a set totally distinct both in ground color and markings. Owing to the black brown markings, the general appearance of a series of these eggs (leaving out the varieties) is a sombre one. The eggs have no gloss. Number of eggs in set 4. Measurements: 1.87 x 1.34 inches.

**Charadrius dominicus**. American Golden Plover.

Surely Dr. Shufeldt is in error when he says the eggs of this species are always much lighter in ground color and larger than those of *Vanellus cristatus*. Taking the ground color, I have never seen or heard of any eggs of *C. dominicus* as light in ground color as those of *V. cristatus* described previously, nor do the average measurements show that they are larger; indeed I have a set of *C. dominicus* taken by Macfarlane in which the actual measurements, 1.8 x 1.35, are much smaller than a great many sets I have of *V. cristatus*. Owing to the reddish buff ground color of the eggs of *C. dominicus* they appear to be brighter and handsomer eggs.

**Charadrius plumialis** (or **C. apricarius**). European Golden Plover.

Although this is not an American species the eggs are so beautiful that I venture to give a description of some of them. These eggs are considerably larger and more richly colored than the eggs of either *C. dominicus* or *V. cristatus*. The description given by Dr. Shufeldt is much more applicable to the eggs of this species than to those of *C. dominicus*, and the measurements he gives, 2.07 x 1.40 (Ridgway), are Ridgway's measurements for *C. plumialis* (or *apricarius*) and not for *C. dominicus*. The ground color varies considerably, very pale buff, mid buff, olive buff, light olive and mid olive, and a rich deep reddish brown buff, spotted and blotched with blackish brown and red brown, the two shades often appearing on the same egg, either separately in spots, or the lighter brown on the top of the darker, giving a very rich appearance to the eggs. The underlying markings are usually few in number, never very large and of a darkish gray. On many of the eggs the markings are small and are evenly distributed, on others the spots and blotches are large, often confluent, and covering most of the surface of the egg, but chiefly the heavy markings are massed at the large end, sometimes forming a zone and at other times a cap. The eggs have in some instances a little gloss. Number of eggs invariably 4. Measurements: 2.07 x 1.4 inch. The eggs are pyriform in shape.

**Haematopus ostralegus.** Oystercatcher.

The eggs of this species vary in ground color from very light stone grey, cream, clay, light buff, medium buff and dark buff, to a good dark brown, spotted, blotched and streaked with blackish brown, occasionally medium brown, and exceptionally a very light yellow brown, and always with underlying markings of gray. Many eggs are finely streaked without any spots, while others have streaks and blotches combined, and large blotches of gray; others again have medium sized spots evenly distributed. The gray on these eggs is not the usual violet gray common to the Limicolae, but a deeper blue-black gray, similar to the color left by a blot of ink on white blotting paper. I know of no other eggs of the Limicolae that have this same shade of gray. The eggs have little gloss. The number of eggs is normally 3 but I have several times found sets of 4, and have heard of many others. These eggs vary greatly in size, from  $2.55 \times 1.75$  to  $2.10 \times 1.50$  inches; average measurements:  $2.2 \times 1.50$ . Eggs ovate in shape.

I have noticed that Ridgway, say in the phalaropes, gives 3 to 4 as the normal set of eggs, and also in other species. Surely it is common knowledge that the bulk of the Limicolae lay 4 eggs, and it would have been far better to have given the names of those species that normally lay less than this number, than to generalize as he does in his introduction to the Scolopacidae—eggs 2-4.

## SOME FURTHER NOTES ON SIERRAN FIELD-WORK

By MILTON S. RAY

WITH FOUR PHOTOGRAPHS BY OLUF J. HEINEMANN

IT WAS on the ninth of June, 1910, that Mr. Henry W. Carriger and the writer gained the Forni Meadow at the base of Pyramid Peak. Inasmuch as Messrs. Barlow and Atkinson, exactly ten years before, investigated the avian possibilities of this region, a comparison of the joint findings may prove of interest. Our predecessors recorded twenty-five species of which we located all but three, the Hermit Warbler, Western Warbling Vireo and Pigmy Nuthatch. Carriger and I listed 36 species, and to an earlier summer and ever shifting distribution during migration, I attribute the cause of this more extended list.

Mr. Barlow records two nests of the Mountain Chickadee, one newly built, and one with eight fresh eggs. We also found a number of the nests of this species, but they all held small young. As Mr. Barlow records his *Tachycineta* with a question mark I may state all we noted were *T. bicolor*. Like Barlow we found no Sierra Grouse at Forni's above 6000 feet, but in similar country, north-west of Phillips' Station on June 12 we encountered a pair at an altitude of 8,500 feet.

Mr. Barlow, speaking of the White-crowned Sparrow, says\*: "On June 10 these sparrows were evidently waiting for nest building which was impracticable until the bushes should become in leaf." I may add in this connection that of about twenty nests of this bird that I have found at various altitudes in the high Sierras three-fourths have been placed on the ground and the balance in the thick evergreen lodgepole pine saplings. Of the ground-nests many were not dependent on foliage for concealment, being hidden by dead branches or concealed at the

\* Condor, II, 1900, p. 107.

foot of bare willows. Mr. Carriger on June 10, close to the cabin, found a ground-nest of the former type with five almost fresh eggs.

Other nests noted were: Two of the White-headed Woodpecker in dead tree trunks 8 and 10 feet up, both with small young. (The call of this bird is remarkably similar to that of the Cabanis Woodpecker.) One nest of the Audubon Warbler with two fresh eggs; a Mountain Bluebird's with five, incubation advanced; and one of the Blue-fronted Jay with two large young. Besides these, numerous nests of the Western Robin and Sierra Junco were noted, containing eggs and young in various stages, and one of the Western Wood Pewee uncompleted.

Near Seven Pines, on June 11, a loud, mingled chorus of bird cries drew us into a thick forest of pines and firs. Here we came upon a Western Red-tailed Hawk hovering just above a nest full of young Western Robins. The parent birds



Fig. 53. PHILLIPS' STATION, 7000 FEET ALTITUDE, SIERRA NEVADA, IN EL DORADO COUNTY, CALIFORNIA

were darting viciously at the hawk's head endeavoring to thwart its murderous purpose, while assembled forest birds of various species contributed their moral and vocal support. At our approach the hawk took wing.

Desolation Valley was crossed and Lake-of-the-Woods reached on June 11. A glance at the accompanying check-list will show the effect sparse timber and bare granite wastes have on birdlife. We noted but 20 species and nearly all of these were recorded at or near Lake-of-the-Woods, which lies at the valley's edge.

On June 12, while crossing a swampy forest tract at an elevation of 7000 feet, near Phillips' Station, I spied a pair of Ruby-crowned Kinglets engaged in nest building. Carriger soon joined me and we watched the birds for some time. We were interested to learn that in constructing their new nest at the top of a

small lodgepole pine the birds were using the material of last year's abode, which hung from the tip of a lofty pine branch a hundred feet away.

While a much more restricted area, to lower elevation and more time afield I attribute the fact that we recorded a greater variety of birdlife at Phillips' Station than at Forni's. We found many nests at Phillips' but none were of any great rarity, being limited to those of the Western Robin, Sierra Junco and Audubon Warbler with both eggs and young, those of the Mountain Chickadee with young only, and of the Sierra Hermit Thrush and Western Wood Pewee with eggs or building.

On June 15, after our return to Bijou on the shore of Lake Tahoe, I found a deserted submerged nest of the Wilson Phalarope (*Steganopus tricolor*) at Rowland's Marsh, with four eggs. The shells of these on examination proved to be very flexible; whether the condition was due to some peculiarity of the eggs



Fig. 54. DESOLATION VALLEY, 8000 TO 8500 FEET ALTITUDE, NEAR PYRAMID PEAK, EL DORADO COUNTY, CALIFORNIA

themselves or to the water in which they had lain for some time, I am not prepared to say. The day following, southwest of Bijou, I located a nest of the Ruby-crowned Kinglet with four pipped eggs and three young, just out. Three other nests of this bird, one found June 23 at Phillips' with seven eggs, one June 28 near Star Lake and another near the Sierra House July 1, each with seven young, show this number to be a quite common complement. A nest of the Common House Finch (*Carpodacus mexicanus frontalis*) was noted June 18, two eggs out of which were rather uniquely marked, the usual blackish spots and scrawls being replaced by those of a light brownish.

From June 19 to 24 was consumed in making a second journey to Pyramid Peak to collect a nest, previously found, of *Leucosticte*. With the exception of this, few notable nests were taken on the trip. One of the Sierra Junco was

noted in Glen Alpine Gorge with the large and uncommon complement of five eggs. At no place on either trip to the peak did we find Sierra Grouse more abundant than about Lake Lucile, elevation 8200 feet. About Phillips' on June 24, young-of-the-year Pileolated Warblers were seen.

On June 26, after we had again returned to Bijou, I secured on the west side of Lake Valley a very dark plumaged Western Red-tailed Hawk. The skin was sent to Mr. Joseph Grinnell at Berkeley, who writes as follows concerning it: "The bird is an immature female of *Buteo borealis calurus*, and is catalogued as no. 13991 of the collection of the California Museum of Vertebrate Zoology. In its dark phase of plumage it resembles examples from elsewhere in California in similar stage. It does not seem possible to correlate this depth of coloration in certain individuals with altitude or with any other circumstance I can think of."



Fig. 55. NEST OF SIERRA JUNCO, ON SLOPE OF PYRAMID PEAK ABOVE FORNI'S, EL DORADO COUNTY, CALIFORNIA

In Cold Creek Canyon on June 28 I found my first occupied nest of that elusive nester, the Thick-billed Sparrow. It held four large young and was placed a foot up in thorny deer brush bordering a cattle path. It was a bulky structure made of sticks and twigs, next to which was placed a generous quantity of bark strips and lastly an inner lining of fine grasses. After reaching the nest the parent birds soon put in their appearance and showed great solicitude, fluttering at times almost within reach of my hand.

Returning, near the Sierra House, I found a nest of the Mountain Song Sparrow in a meadow at the foot of small willows, with three young, one of which was a partial albino, it having the entire under parts pure white and iris light reddish. Further on, near Bijou, I came upon a chipmunk in the act of destroying a nest of eggs of the House Finch. June 30 and July 1 were spent in

willow thickets along Trout Creek. Here I found the Traill Flycatcher (*Empidonax trailli trailli*) and the Yellow Warbler (*Dendroica aestiva brewsteri*) very abundant, six nests of the former and four of the latter being located. Those of the flycatcher were all placed in willows close to the water at an average height of four feet above the ground and were remarkably similar in construction, being made of bark strips, grasses and vegetable fibers, and lined with horsehair. All the nests held either three or four eggs, which varied from fresh to some well along in incubation. The nests of the warbler, being a much earlier nesting bird, contained both eggs and young in various stages.

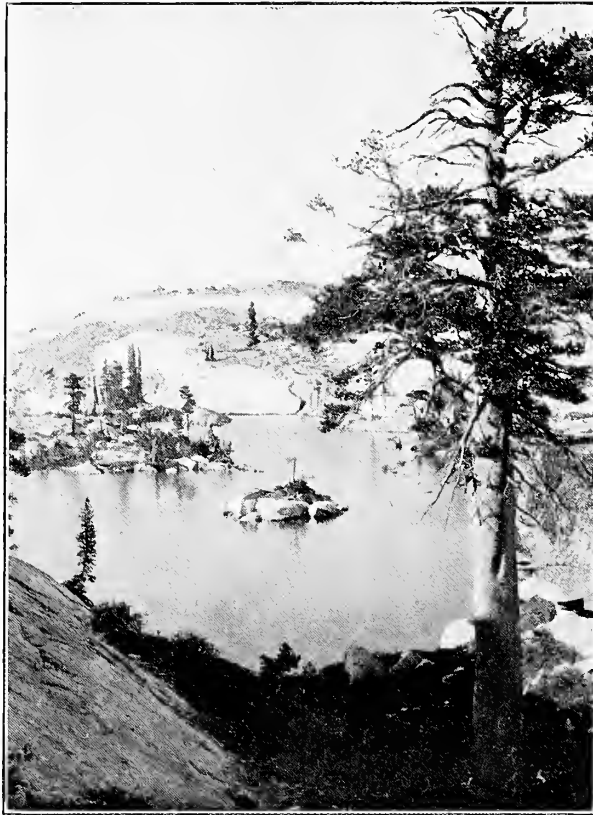


Fig. 56. ONE OF THE ALPINE LAKES IN DESOLATION VALLEY, NEAR PYRAMID PEAK, CALIFORNIA

The last nest, which I found late in the afternoon of July 1, important only on account of the extremely late date, was one of the Belted Kingfisher (*Ceryle alcyon*) in a sand bank six feet above water and dug to a depth of four feet seven inches. The eggs, seven in number, were but slightly incubated and lay on a bed of small fish bones. The sitting bird did not leave until I was almost through excavating. Previous nests of the bird in the Lake Valley region have all held large young by the first of June.

LIST OF SPECIES NOTED IN THE CENTRAL SIERRA NEVADA  
BETWEEN JUNE 9 and 14, 1910

	Phillips' Station, 6500 to 7600 feet	Forni's, 6000 to 9000 feet	Desolation Valley, 8000 to 8500 feet
1 <i>Actitis macularius</i> . Spotted Sandpiper.....	x		x
2 <i>Oreortyx picta plumifera</i> . Mountain Quail.....	x	x	x
3 <i>Dendragapus obscurus sierrae</i> . Sierra Grouse.....	x	x	x
4 <i>Accipiter atricapillus striatulus</i> . Western Goshawk.....	x		
5 <i>Buteo borealis calurus</i> . Western Redtail.....		xx	x
6 <i>Aquila chrysaetos</i> . Golden Eagle.....	x		
7 <i>Dryobates villosus hyloscopus</i> . Cabanis Woodpecker.....	x	xx	
8 <i>Xenopicus albolarvatus</i> . White-headed Woodpecker.....		xx	
9 <i>Sphyrapicus varius daggetti</i> . Sierra Sapsucker.....	x	xx	
10 <i>Sphyrapicus thyroideus</i> . Williamson Sapsucker.....	x	x	
11 <i>Colaptes cafer collaris</i> . Red-shafted Flicker.....	x	x	
12 <i>Chordeiles virginianus hesperis</i> . Pacific Nighthawk.....			x
13 <i>Stellula calliope</i> . Calliope Hummingbird.....	x		x
14 <i>Nuttallornis borealis</i> . Olive-sided Flycatcher.....	x	x	
15 <i>Myiochanes richardsoni richardsoni</i> . Western Wood Pewee	x	x	x
16 <i>Empidonax wrighti</i> (presumably). Wright Flycatcher....	x	xx	
17 <i>Cyanocitta stelleri frontalis</i> . Blue-fronted Jay.....	x	x	
18 <i>Nucifraga columbiana</i> . Clarke Nutcracker.....	x	x	
19 <i>Hesperiphona vespertina montana</i> . Western Evening Grosbeak	x		
20 <i>Pinicola californica</i> . California Pine Grosbeak.....	x	x	x
21 <i>Carpodacus cassinii</i> . Cassin Purple Finch.....	x	x	x
22 <i>Loxia curvirostra bendirei</i> . Sierra Crossbill.....		xx	
23 <i>Leucosticte tephrocotis tephrocotis</i> . †Gray-crowned Leuco-			
sticte.....		x	
24 <i>Spinus pinus pinus</i> . Pine Siskin.....	x	x	x
25 <i>Zonotrichia leucophrys leucophrys</i> . White-crowned Sparrow	x	x	x
26 <i>Spizella passerina arizonae</i> . Western Chipping Sparrow..	x	x	
27 <i>Junco oreganus thurberi</i> . Sierra Junco.....	x	x	x
28 <i>Melospiza melodia montana</i> . Mountain Song Sparrow....	x		
29 <i>Melospiza lincolni lincolni</i> . Lincoln Sparrow.....		xx	
30 <i>Passerella iliaca megarhyncha</i> . Thick-billed Fox Sparrow..	x	xx	
31 <i>Oreospiza chlorura</i> . Green-tailed Towhee.....		xx	
32 <i>Zamelodia melanocephala capitalis</i> . Black-headed Grosbeak..	x		
33 <i>Piranga ludoviciana</i> . Western Tanager.....	x	x	x
34 <i>Iridoprocne bicolor</i> . Tree Swallow.....		x	
35 <i>Vireosylva gilva swainsoni</i> . Western Warbling Vireo.....	x		
36 <i>Dendroica aestiva brewsteri</i> . California Yellow Warb-			
ler. . . . .	x		
37 <i>Dendroica auduboni auduboni</i> . Audubon Warbler.....	x	x	x
38 <i>Wilsonia pusilla chryscola</i> . Golden Pileolated Warbler..	x	xx	x
39 <i>Cinclus mexicanus unicolor</i> . American Dipper.....	x		
40 <i>Troglodytes aedon parkmani</i> . Parkman Wren.....	x		
41 <i>Certhia familiaris zelotes</i> . Sierra Creeper.....	x	xx	x
42 <i>Sitta carolinensis aculeata</i> . Slender-billed Nuthatch.....	x	xx	
43 <i>Sitta canadensis</i> . Red-breasted Nuthatch.....	x	xx	
44 <i>Penthestes gambeli</i> . Mountain Chickadee.....	x	x	x
45 <i>Regulus calendula calendula</i> . Ruby-crowned Kinglet.....	x	xx	
46 <i>Hylocichla ustulata ustulata</i> . Russet-backed Thrush.....	x		
47 <i>Hylocichla guttata sequoiensis</i> . Sierra Hermit Thrush....	x	x	
48 <i>Planesticus migratorius propinquus</i> . Western Robin.....	x		x
49 <i>Sialia currucoides</i> . Mountain Bluebird.....		x	

xx Not recorded by Barlow.

† Observed only above 9300 feet elevation.

## IDENTIFICATION BY CAMERA

By WILLIAM LEON DAWSON

WITH TWO PHOTOGRAPHS BY THE AUTHOR

A NATURAL rivalry—oh entirely good-natured, I trust—exists between the “gunmen” and the exponents of those more modern weapons of attack, the camera and the binoculars. Of course the arbitrament of the gun *in your own hands* is conclusive, as indisputable as the virtue of the dead Indian; but there be those who find less pleasure in knock-down arguments than in the more subtle play of the wits. Science deals with facts and her cold storage chambers of induction are crowded with certainties, established truths, often uninteresting because undisputed and so, nearly forgotten. But the quest concerns itself with near-facts, probabilities, possibilities even, and herein resides the interest of life. As instruments of research in the realm of interest I submit that the binoculars and the camera are proving themselves superior to the gun.

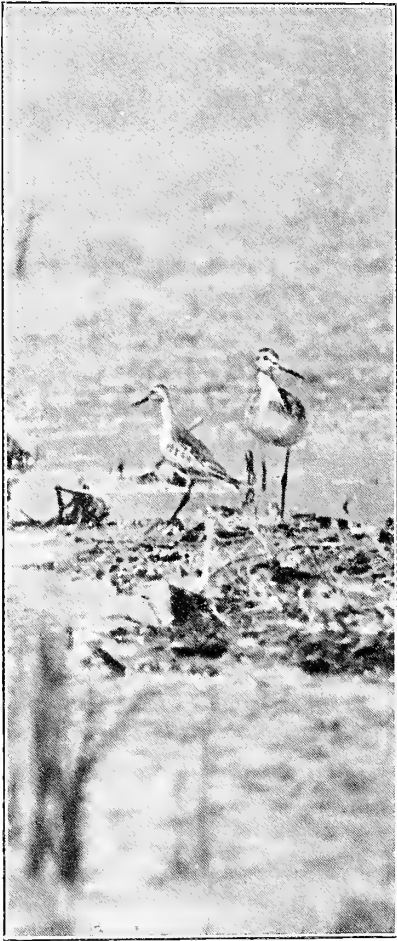


Fig. 57. LESSER AND GREATER YELLOW-LEGS, PHOTOGRAPHED ON THE ESTERO NEAR SANTA BARBARA, CALIFORNIA, AUGUST 16, 1913.

Moreover, in the fact-product itself the work of the camera at least is by no means negligible. It, no more than the gun, depends in the last analysis, upon the credibility of human testimony, upon the honesty of the observer. *You say this Tennessee Warbler's skin was secured in such and such a place. Very well; I agree that it is a Tennessee Warbler's skin. Whether it is therefore a bird of California rests with you. I will accept it as such on your say-so. I say that the accompanying photographs, believed to include portraits of the Lesser Yellow-legs (*Totanus flavipes*)\* were taken in the Estero at Santa Barbara on the 16th day of August, 1913. The conclusion that these photographs really do represent the Lesser Yellow-legs in life is less obvious, less forced upon you than in the case of your warbler skin. That is a matter for you to decide. The data which we are able to submit for your consideration are much less complete than those you offer me. I can offer only evidence*

which answers the tests of outline, distribution of light and shade and comparative size. That this has some value you *must* admit, but I shall not blame you if you do not find it conclusive. For, after all, the status of *T. flavipes* as a bird of California must rest upon testimony, upon the reliability of a witness, *ne c'est pas?*

\*Disallowed as a bird of southern California by the latest authority (Willett, Pac. Coast Avif. no. 7, 1912, p. 111).

At the time these photographs were taken there were eleven of the Lesser Yellowlegs present on our Estero, and they were to be found in varying numbers for about two weeks thereafter. They proved to be rather timorous on all occasions but especially so when incited to flight by the Killdeers, which were always bossing them about. In moving to and fro across the Estero they usually paid little attention to their own kind and were as ready to join a bevy of Long-billed Dowitchers or Northern Phalaropes or the solitary Greater Yellowlegs



Fig. 58. LESSER YELLOW-LEGS IN COMPANY WITH NORTHERN PHALAROPE (AT LEFT) AND WESTERN SANDPIPER (THE SMALLEST BIRD OF THE THREE); PHOTOGRAPH TAKEN ON THE ESTERO NEAR SANTA BARBARA, CALIFORNIA, AUGUST 16, 1913.

shown herewith, as to hunt up their proper fellows. The duet recorded in this critical picture lasted but a moment, for upon the instant of discovery I swung upon them with the Graflex as one would level a gun and at the "report" of the shutter they were off like rockets. And as they flew they made outcry in two different keys of Totanine indignation, the notes of these two species being even more distinct as a measure of difference than the relative size of their bodies.

## SOME CURIOUS NESTING PLACES OF THE ALLEN HUMMINGBIRD ON THE RANCHO SAN GERONIMO

By JOSEPH MAILLIARD

WITH ONE PHOTOGRAPH BY THE AUTHOR

THE THREE nests of Allen Hummingbird (*Scelasphorus alleni*) shown in the accompanying photograph are of especial interest on account of the peculiar choice of location, all three being inside of buildings more or less in use. As it was impossible to photograph them *in situ*, on account of want of light and, in two cases, because of their inaccessibility as far as a camera was con-

cerned, they were hung against a screen after being removed from their natural sites for this purpose.

The two outer nests were on the inside and just under the rafters of a wagon shed, the lower part of the north side of which was open, used to protect farm wagons and implements from the deteriorating effects of the weather. The pulley on the left of the picture was used to haul up the successful results of the numerous deer hunts that took place on our ranch, the nest having been built upon it before the opening of the deer hunting season in that year (1911). In this case the nest was finished and a brood successfully reared before the pulley was put to use.

The rope sling on the right had been used to sling some tackle in order to lift up a heavy piece of farm machinery at some time and left there after the

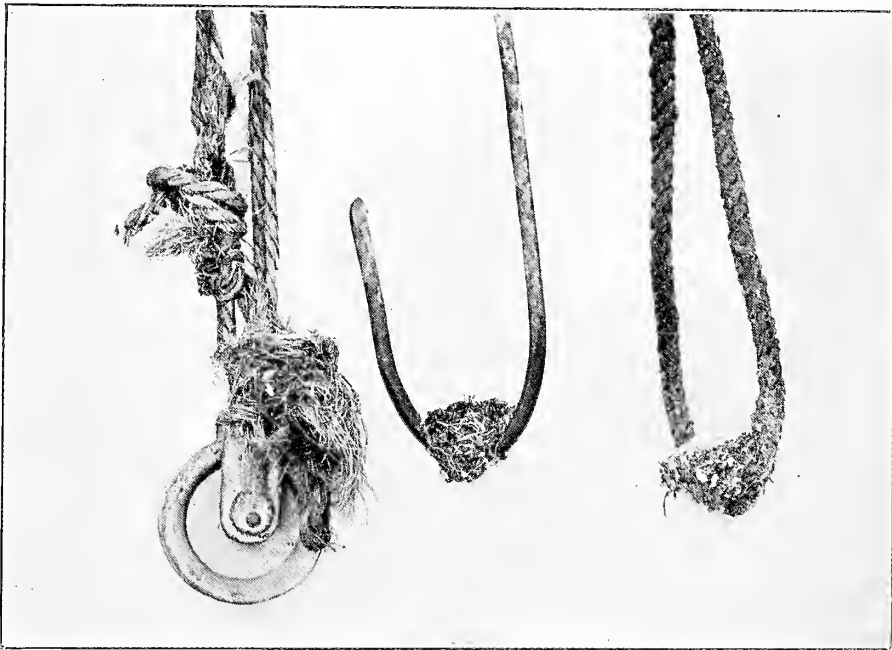


Fig. 59. EXTRAORDINARY NESTING SITES OF THE ALLEN HUMMINGBIRD AT MAILLIARD, MARIN COUNTY, CALIFORNIA

tackle was removed. The bird which discovered this site evidently thought it a fine safe place in which to rear a brood, and in this the bird was right, as it was not disturbed. This nest was built in 1912, and as it was only a few feet from the one on the pulley of the year before, it is very likely the same bird that constructed it. While this shed had been a favorite nesting place for Western Flycatchers it seemed altogether too dark to have been selected by hummingbirds, which generally build in more or less open places.

The nest in the center was in a carriage house but a few steps away from this wagon shed, and was built on a hook, made from an iron rod, suspended from a wooden bar and about five feet from the ground, which with several adjacent, was used for hanging up harness in the process of cleaning. This nest was discovered in an unfinished state by the stableman when he went to clean some harness. He reported his discovery and was admonished to use temporarily

some other contrivance, but the passing of men, horses and carriages in and out of the room was too much for the nerves of the builder and it was abandoned when about two-thirds finished.

## THE BIRDS OF SAN MARTIN ISLAND, LOWER CALIFORNIA

By HOWARD W. WRIGHT

WITH SIX PHOTOS BY THE AUTHOR

ON THE EVENING of July 5, 1913, the sloop "Siwash", with Messrs. J. R. MacIntock, W. S. Wright, E. W. Roche, F. E. McClure and the writer aboard, slipped quietly into a little bay, known as Hassler's Cove, located in the island of San Martin, Lower California. This island is situated about two hundred and forty miles south of San Diego, lies about four miles off-shore, and is ten or twelve miles to the northwest of San Quentin Bay. It is the result of a volcano that has shoved its peak above the sea, forming a round



Fig. 60. PORTION OF FARALLON CORMORANT ROOKERY ON SAN MARTIN ISLAND, LOWER CALIFORNIA

island about a mile and a half in diameter, with a small bay situated on the northeast side. There is a well-formed cone in the center, which rises to a height of about five hundred feet.

On the night of our arrival we were greeted with a strong stench of guano, which gave promise of large bird colonies; for the other islands we had visited did not smell badly until we were actually among the birds. We anchored too close to shore and as a consequence were awakened about three-thirty A. M. by the keel scraping on the ground. We were well repaid for the trouble of arising at this hour, however, for we heard the swish of many wings long before daylight, and with the first streaks of dawn we beheld a sight that will long be remembered. From the hills there poured a steady stream of cormorants, flying

about eight or ten abreast. This stream poured from these hills continuously and reached as far as we could see, toward the bay of San Quentin. The stream was like a great black ribbon that waved in the breeze and reached to the horizon. It was truly a wonderful sight. The birds kept coming as though there were no limit to their numbers.

At about seven-thirty a stream began to return, each individual heavily laden with fish. The ribbon of birds was now double—one part leaving and the



Fig. 61. PORTION OF FARALLON CORMORANT ROOKERY ON SAN MARTIN ISLAND, LOWER CALIFORNIA

other returning. The flow of birds was continuous during the daylight hours of each day we were there. The flow was unbroken—simply one steady stream going, all day, and a steady stream returning.

On landing we found a nice sand beach, but very rugged and rocky hills. Birds were everywhere: Little birds, big birds, old and young, each trying to make more noise than his neighbor. They reached for us from all sides, their incessant calling was deafening, and the stench was nearly suffocating. We spent the next few days in exploring the island, taking notes, estimating the number of



Fig. 62. FULLY GROWN YOUNG BRANDT CORMORANTS, PART OF COLONY ON SAN MARTIN ISLAND, LOWER CALIFORNIA

cormorants and attempting to find the breeding place of petrels. We were very much disappointed in not finding these latter birds breeding.

Following is a list of birds seen, together with a few notes on each of the species:

**Brachyramphus hypoleucus.** Xantus Murrelet. Heard each evening in the bay. Several sighted near-by on the way to San Quentin.

**Larus occidentalis.** Western Gull. Very numerous. They seem to breed early

here in order to be through with their family duties by "cormorant season", as we found very few small young. Whenever we went anywhere about the island a large band of these white pirates followed us. They were very tame and would swoop down to destroy eggs and eat young before our very faces.

I was disgusted, once, in seeing a gull carry a struggling young cormorant off by the neck. The youngster weighed about half a pound, but the gull swallowed him whole in mid-air. The last I saw of the gull, the cormorant was still kicking, in the gull's throat.

Another gull flew down near us and leisurely gobbled up a brood of four young cormorants. The rest of the youngsters showed no fear at the fate of their brothers and sisters but sat quietly and awaited their turn. I placed a camera, with a string attached to the shutter, on a rock near a nest of young cormorants, hoping to get a picture of a gull eating the young, but I was disappointed, as the old cormorant returned first.

**Larus heermanni.** Heermann Gull. Several seen about the island.

**Phalacrocorax auritus albociliatus.** Farallon Cormorant. Present in vast numbers. About 99 per cent of the bird population was made up of this and the following species. The Farallon Cormorant nested farther inland than the Brandt. Following are a few of our estimates as to the number of birds present, and the amount of fish consumed each day by this colony.

The island is a mile and a half in diameter. The area is, then, 1.76 square miles. The breeding area only reaches inland a half mile on all sides; therefore there is a circle in the center, half a mile in diameter, which contains very few nests. The area of this circle is .19 square miles. Subtract this from

1.76 and we have 1.57 square miles, or the area covered by colonies. Call it

1.50 sq. mi., roughly. There are 27,878,400 square feet in a square mile, so that the breeding district contains, approximately, an area of 34,848,000 square feet. In many little hollows, where the limits of a colony were bounded by rocks, we counted the nests and then measured the area enclosed. We then measured, roughly, the area between that colony and the next, and so on until we got several colonies. We then took the number of square feet over which we had traveled and divided it by the number of nests seen and we found it to average about one nest to every 100 square feet. There were several thousand Brandt Cormorants, which had left their nests and were standing around in droves. These we did not include in our estimate, as they were impossible to count.

Allowing, then, one nest to every 100 square feet, we would have 348,480 nests included in the inhabited area. Each nest represented, on an average, three young and two adults. We found two young sometimes, but also found many more nests with four young. Allowing three young and two adults to each nest,

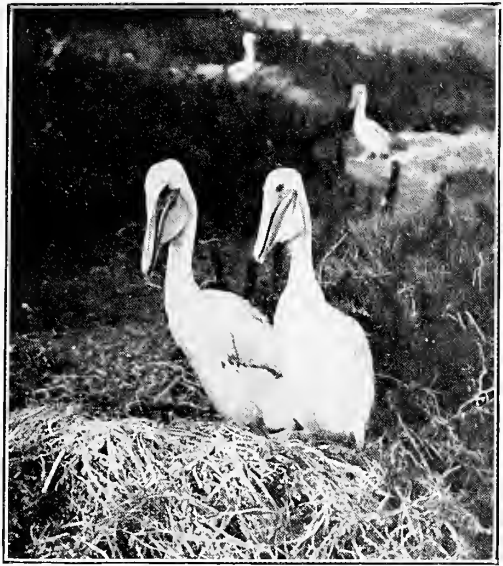


Fig. 63. YOUNG CALIFORNIA BROWN PELICANS, ON SAN MARTIN ISLAND, LOWER CALIFORNIA.

we figured about 1,800,000 birds, as the population of the island. The gulls were not considered in this estimate, as their young were too scattered and the nests too hard to locate.

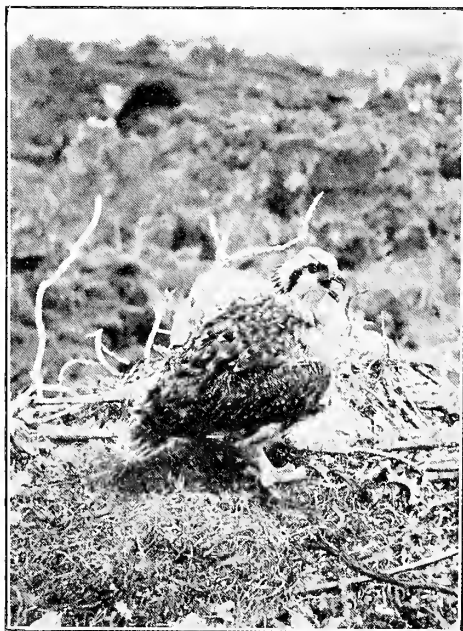


Fig. 64. YOUNG OSPREY, SAN MARTIN ISLAND, LOWER CALIFORNIA

not so numerous as the last. On the north side the young gathered in big droves and resembled Penguins as they tried to waddle out of our way.

**Pelecanus californicus.** California Brown Pelican. Nesting in considerable numbers on the southern shores.

**Ardea herodias.** Great Blue Heron. Several pairs were breeding in a hollow on the southeast side. There were five nests containing three young each.

**Haematopus frazari.** Frazar Oystercatcher. Several seen along the shores.

**Haematopus bachmani.** Black Oystercatcher. Fairly abundant along sheltered portions of the shores. Several found on a little lagoon on the east side. They appeared to be breeding but no nests were found.

**Pandion haliaetus carolinensis.** American Osprey. There are about thirty pairs breeding on this island. We counted thirty-five nests, one containing two partly grown young. The birds used the other nests as "look-outs."

**Aluco pratincola.** Barn Owl. My father flushed a "big yellow owl" from a blow-hole in the lava on the south side.

**Salpinctes obsoletus.** Rock Wren. Very abundant and very tame. Were easily approached for photographic purposes.

We became very much interested in estimating the amount of fish these birds consumed per day. We noted the amount each young cormorant threw up when molested, and found on several occasions a bunch of fish as big as a man's two fists. This mass was generally composed of surf fish, smelt and sardines. I have heard of other estimates of from three to six sardines a day for a cormorant, so I consider a half pound of fish a day very conservative.

Allowing half a pound of fish a day for each of the 1,800,000 birds, the entire population would consume about four hundred tons a day or about ten thousand tons a month! The fishing was done in San Quentin bay, exclusively, but in that bay and in Hassler's Cove, on the island, fish were found very plentiful, and always hungry, showing that the birds do not seriously lessen the number of fish.

**Phalacrocorax penicillatus.** Brandt Cormorant. Present in large numbers, though



Fig. 65. ROCK WREN, SAN MARTIN ISLAND, LOWER CALIFORNIA.

## A MNEMONIC DEVICE FOR COLOR-WORKERS

Based on a consideration of Ridgway's "Color Standards and Nomenclature"

By WILLIAM LEON DAWSON

WE HAVE ALL caught ourselves making "pictures", geometrical designs or graphs, out of mental concepts. Thought relations of all sorts tend to arrange themselves automatically into spatial groups. Thus, the days of the week to our minds are segments of a closed circle, or steps of a ladder, or links in a chain, as the case may be. If an eighth day were added to the week by statutory decree we should chop open our mental circle, change the curve and insert the new segment, or we should add another rung to our mental image of a ladder, or add an eighth link to our chain. But of all mental graphs I venture to say that our color schemes have been least perfectly organized, least logical, least related. Following the analogy of the chart we have sometimes pictured color groups in two dimensions, but the charts themselves remained dissociated, unorganized, arbitrary. What may be the extent of Ridgway's indebtedness to other color theorists I do not know—he hints at such indebtedness in his "prologue"—but so far as zoological color-workers are concerned it remained for the orderly mind of Robert Ridgway to so present color relations that we may conceive them in three dimensions, to fix it indeed so that we must so conceive them. To be sure the limitations of book making still necessitate the use of dissected charts serially presented. But even with this handicap the sequence is so logical that we are able to reconstruct a mental cube or visualized color-file having length, breadth and thickness.

Color-file is perhaps the best name for this new piece of mental furniture. Let us conceive it as made up of prisms, cubes, of colored glass. To understand its order, therefore, let us examine its first or facing wall—thirty-seven cubes, or columns of cubes, wide, and nine tiers, or rows of cubes, deep. The central tier reading from left to right comprises the pure colors of the spectrum, red, orange, yellow, etc., together with carefully selected intergrades, orange-red, orange orange-red, red-orange, etc.,—thirty-six colors to be known as *hues* (with red repeated at the extreme right to give meaning to the violet-red series). The bottom tier of our wall is pure black, the limit, or asymptote, of the successively deepening *shades* produced by mixing the pure color of the central member of each column with increasing percentages of black. The top tier of our wall is pure white, the limit, or asymptote, of successively lightening *tints* of the central color produced by increasing dilutions of white. In Ridgway's scheme three steps are made in each direction, so that we have seven colored tiers separating the black and the white boundary tiers.

So much is commonplace; the next step is inspiration—Ridgway's. The third dimension of our color file is secured by progressive dilutions of *neutral gray*, additions of a uniform amount in a given wall, each block differing from its neighbors in the same wall in precisely the same *degree* in which the pure color blocks differ from their neighbors. It is obvious that if progressive additions of gray differed only by one percent, we should have one hundred walls, bounded on the rear by a wall whose central tier was pure neutral gray and whose successive *tints* approached the top layer of pure white, and whose successive *shades* approached the bottom layer of pure black, as in the first wall. As a matter of convenience only five such progressively grayed intermediate walls are found necessary to cover for practical purposes the whole range.

The secret of this magic fortress is the value of *neutral gray*. To parody Goethe: *Grau ist eine ganz besondere Farbe*. Gray (neutral) is a tint of a very special kind. It is the epitome or synthesis of all other colors in turn, including that color positive and negative of color, black-and-white. Its use precludes the necessity of an intimate acquaintance with color combinations. You do not have to puzzle over a given color and say, this is blue *plus* red *plus* green *plus* violet. You have only to say, this is blue plus so much (or approximately so much) neutral gray, and you have it. All this may be rice to the initiated, but it is still "caviar to the general."

Once you get the idea you cannot get away from the color-file. It has the ultimate authority of simplicity, of logical sequence, and of comprehensiveness. One even ventures to hope that such a color-file may one day be actualized in glass or blocks of painted wood, as a recognized essential of the color-worker's apparatus. With such a device one might, for instance, by lifting off the top layer of white prisms survey all possible light tints at a glance, or by lifting off the four top layers (or whatever number you elect to have in your scheme) view all the pure colors and all gray tones thereof at a glance. This would be simplicity itself. Meanwhile this mental or "mnemonic" color-file will be found indispensable.

## A PRACTICAL SYSTEM OF COLOR DESIGNATION

### A Partial Critique of Ridgway's "Color Standards and Nomenclature"

By WILLIAM LEON DAWSON

WE ARE UNDER deep and lasting obligation to Mr. Ridgway for having brought order out of chaos in the standardization of color. He has shown a comprehensive grasp of the whole color problem, and has brought to its solution a practical sagacity never before equalled. Thanks to him we have at last a real color key. The first edition of "Color Standards and Nomenclature" might have been a hundred thousand copies instead of one thousand if attention could first have been properly aroused to this most exquisite and intimate of human interests, color appreciation. However, we are overjoyed to see an authoritative beginning made. The practical standardization of color has been accomplished; but the same cannot be said of the equally practical (though perhaps not equally important) standardization of color names. The reason for this is apparent. Color names have arisen singly and at haphazard, according to the convenience, or necessity, or caprice of the individual. Collectively, they have come down to us with a thousand varying sanctions of experience, of poetry, and nature and all the handicrafts besides. For every color name that has lived, a dozen have been still-born, or died in infancy. To make selection from this motley host is not only to be arbitrary and capricious, by reason of the thousands of other names rejected, but it is to fail in the fundamental purpose, which is to fix concepts in their necessary relations.

Now the function of language is to communicate thought, ideas. This it does by the use of words, words which are chiefly the symbols of a common experience. The more established the value of the component words. *i. e.*, the more certain their appeal to common experience, the clearer the language, the more

readily understood the thought. But words not only symbolize experiences: they indicate relationships; they point out the way to other experiences. If they *relate themselves* to common experience, they become intelligible, even though the experience connoted by the word itself is a new one. Words must either record common experience, or point out the way to such experience, or remain unintelligible.

Now this is the trouble with color names, even those employed in Ridgway's new Nomenclature of Color. They do not appeal to common experience. They are so recondite or so arbitrary, or so fanciful as to be incommunicable, save to specialists as highly trained as Ridgway himself. They are not only meaningless to such as do not possess the "key," they are so unrelated in thought that they can be found or re-found in the book itself only by constant reference to the index. Thus, "Hermosa Pink" is in the red series; "Bittersweet Pink" in the orange series; "Phlox Pink" in the violet series, etc. "Chatanay Pink" crops up in the gray-toned tint of Scarlet-red; and "Tourmaline Pink" among the double-gray-toned tints of Rhodamine Purple. Pink does suggest redness, so that one does not need to hunt outside of the twelve hues between Violet-Red and Red-Orange; but here are several hundred possibilities; and it will puzzle the student to find, save through the index, Patent Blue or Acetin Blue or Corydalis Green or Mytho Green or Asphodel Green, even with the basic hue named outright. These names may be found to be exact when you have arrived, but there is nothing about them which points the way to the inquirer. Such names do not appeal to common experience, and they contain only the smallest suggestions of relationship.

It is quite conceivable that a student, preferably a younger one, should memorize this entire list, should master it so that he could recognize and name a color at sight; but even so his report would be unintelligible to any one else who had not similarly mastered this Chinese alphabet of color. He would still require color terms by which it would be possible to communicate his impressions to the general reader.

If this is ever to be done the basic names of color nomenclature must be simplified in character and reduced to the lowest terms, and all other color names must be so constructed as to point clearly to the nearest base. This is no easy matter. Perhaps it cannot be done. Perhaps, however perfectly done, the public would not stand for it, any more than they would have stood for Volapük or Esperanto or the other honest attempts to provide a universal language. But unless it is done, technical descriptions, as of bird plumage, couched in the color terms of the new key, will remain in sealed books.

I have no such ideal system to propose. That is a matter which might well engage the profound attention of influential learned bodies. Doubtless, no one is more conscious of this fundamental requirement of color nomenclature than Mr. Ridgway himself, but he was too modest to advocate such a sweeping change. Nevertheless, he has pointed out one way, through the use of descriptive adjectives where established names were lacking—ideally in the case of Neutral Gray, whose successively diminishing tints are designated as light neutral gray, pale neutral gray, and pallid neutral gray; and whose deepening shades are deep neutral gray, dark neutral gray, and dusky neutral gray. This suffices when we wish to refer to a norm only three points away, but it would break down of sheer cumbersomeness if we wished to refer back through successive gray dilutions to the normative hue.

But some way *must* be found around the difficulty—for thought, if not for printed description. Because of this necessity I am emboldened to describe my own

thought process and to record the terms by which I seek to make a color name clear to my own apprehension. Accepting Ridgway's arrangement and spacing of colors as a practical fixity, and referring all colors to the thirty-six-hue base, I designate the three diminishing tints of each local base as tint, half-tint, and quarter-tint, respectively; and the shades as shade, double-shade and triple-shade, respectively. This is not accurate in either case if we base our comparison upon percentages of black or white, but it is practically correct if we appeal to the eye and that is what we are after. In like manner referring back to the normative hues all successive changes affected by additions of neutral gray, I speak of gray (32%), double-gray (58%), triple-gray (77%), quadruple-gray (90%), and quintuple-gray (95.5%)—the last two, of course, rarely required. In this way, the blue of a Valley Quail's breast designated in the text of Ridgway as Light Payne's Gray, is thought of as the double-gray half-tint of Spectrum Blue; and the buffy of its lower breast, known as Light Buff, is related in thought to the Cadmium Yellow base by saying that it is the gray quarter-tint of that hue. It is thus clearly differentiated from "Cartridge Buff" or "Tilled Buff", which are as truly light-buffies, but which differ very materially in quality from the arbitrarily named Light Buff.

In *analyzing* a color, that is, in seeking to arrive at its proper designation, the reverse of this process is of the utmost importance. One first decides upon its basal or distinctive element, then estimates the relative admixture of gray, then turns expectantly to the appropriate column to determine the tint or shade. As a novice I should never by any possibility have guessed that a Valley Quail's breast is light Payne's Gray (indeed, I suspect I shall die in ignorance of the difference connoted by the *names* Payne's Gray and Puritan Gray), but I did guess first off, within one point, that it was a double-gray quarter-tint of Spectrum Blue. A brief experience leads me to the belief that this logical process will always be followed, in practical disregard of arbitrary names. For this provision of a logical method of color inference, we are immeasurably indebted to our foremost living ornithologist, Robert Ridgway.

## PRELIMINARY REPORT UPON THE DISEASE OCCURRING AMONG THE DUCKS OF THE SOUTHERN SAN JOAQUIN VALLEY DURING THE FALL OF 1913

By FRANK C. CLARKE

Special Assistant, California Fish and Game Commission

WITH ELEVEN PHOTOGRAPHS AND ONE DIAGRAM BY THE AUTHOR

**A**BOUT the month of August, 1909, a fatal epidemic broke out among the water birds, especially among the ducks, of the vicinity of Soleta Lake, which lake, now dry, was situated about thirty-five miles southeast of Tulare Lake. This epidemic, gradually spreading, raged throughout the hot part of the season till the cool weather of the fall, when it ceased. At this time Soleta Lake was quite stagnant, becoming more so until it finally dried up some two or three years later. There were reports of a fatal disease among the water birds the year before, but little attention was paid to them.

During the following year, that is, 1910, the same disease, apparently, broke out not only on the above mentioned waters but also on Buena Vista, Goose and Tulare lakes. Thousands of birds died. Members of the State Fish and Game Commission made several expeditions into the regions thus affected, but were unable to ascertain the cause of the malady. The year following this, the disease again appeared, and an attempt to determine the cause of the mystery was made but not completed. The year 1912 was not an off year for the disease, nor has the present season been an exception. On the other hand, the present season has been almost a record year for a high death list.

Whatever has been the causative factor of the malady, it does not seem to have been one which rendered the birds affected by the disease dangerous for human consumption, because many thousands of sick birds have doubtless been distributed through the markets of San Francisco, Los Angeles and other places. The writer has been told by reliable parties that, ever since the disease was first known, market-hunters (some of whom are not noted for the highest principles of integrity and morals) have reaped a two-fold-harvest in their business by selling sick birds. These were easily obtained and being fat, sold well. It is said that



Fig. 66. BED OF TULARE LAKE, ON SOUTH SIDE; MANY MILES OF THIS SORT OF GROUND WERE COVERED BEFORE ANY OPEN WATER WAS REACHED; PHOTOGRAPH TAKEN SEPTEMBER 30, 1913.

the market hunter would pick up a string of sick ducks, hang them out, get off several yards and fire shot into the birds to kill them, and thus allay any suspicion as to the nature of their condition and capture. Certainly the market hunter of wild game should have no more right to sell diseased birds than the stock man has to sell diseased beef or mutton.

Great interest has naturally been aroused regarding this condition, as thousands upon thousands of our finest game birds, representing a large sum in dollars and cents to the people of the state, have perished from the unknown cause.

No systematic investigation was made on this subject until the present season when the State Fish and Game Commission, working in co-operation with the University of California, detailed a research assistant from this latter institution to make as thorough an investigation of this destructive disease as means at his disposal should permit. The present article is only a preliminary report, which is intended to answer some of the many questions which have been put to the Fish and Game Commission regarding the subject.

The investigation was begun on September 19, 1913. The first work consisted of a general survey of the situation, and the collection of a large number

of sick birds, which were carefully examined. Later, experimental work was carried on at Tulare Lake, the results of which will be described toward the close of this paper.

The State Fish and Game Commission, besides directly financing this investigation, gave every possible assistance toward the furtherance of the work. Deputy Fish and Game Commissioners Tipton Mathews and E. W. Smalley, both under orders, were in the field continuously for over three weeks, gathering material and transporting the necessary equipment from place to place. The machine of Mr. Mathews greatly facilitated the undertaking. The preliminary examination of ducks and other birds was made in the laboratory of Dr. Frank Griffiths of Hanford, who kindly furnished headquarters for this work. Professor J. G. Davidson, of the Hanford Union High School, deserves mention for the valuable analyses which he made of water, gases, and blood.

Tulare Lake, situated in the southern portion of Kings County, on the western side of the southern San Joaquin Valley, is not the large body of water that one would expect to find from looking at the ordinary travelers' map of California. At present the lake is lower than for the past seven years, and at the present rate of evaporation it will most probably be entirely dry in another year, unless the coming winter proves a wet one. Prior to 1906



Fig. 67. DUCKS RISING FROM A LEVEE IN TULARE LAKE, OCTOBER 3, 1913;  
NOTE DEAD BIRDS IN FOREGROUND

this lake had almost completely dried up, and nearly all of the bottom lands were farmed. It was during this period that the lake bed was dyked off on the section lines, and this was the origin of the levees of which I shall speak later on.

These levees, in the central portions of the lake region, were built only a few feet high. At present they are over a large area submerged, while around the borders of the lake they gradually rise out of the water and thus afford resting places for water birds. As soon as dry enough these levees are used as roads for travel, since most of them are from 20 to 40 feet wide, and are dry long before the land between them.

The winters of 1905-6 and 1906-7 were years of heavy rain fall, and the lake, together with the adjoining sloughs, filled to a mark higher than for many years. The sloughs connecting this Lake with Buena Vista and the San Joaquin River are now very low or dried up. Goose Lake is entirely dry, and Buena Vista Lake, situated in the southwestern part of Kern County, is also very low. As our investigations were carried on mainly at Tulare Lake, we shall confine our discussion principally to that region.

Following the intermittent recession of the waters of Tulare Lake during each of the past two or three years, the land, as soon as dry enough to work,

has been planted with Kaffir corn, grain, squash, etc. Thus at the present time these crops extend to within two or three miles of the water line. But between the planted areas and the water there is no vegetation at all. The lake is merely a body of shallow stagnant water far away from any vegetation, plant or tree, and consequently there are no breeding places for ducks or any kind of birds whatsoever (see fig. 66). The bottom is a soft black mud containing large amounts of disintegrating organic matter. This mud is the abode of considerable insect and worm life, and consequently furnishes a certain amount of food for water birds.

Due to the processes of fermentation which go on in the bottom mud of the lake, a great deal of gas is generated, principally marsh gas; but I do not believe that this gas is responsible at all for the epidemic, as has been suggested by some. The water is decidedly brackish, is translucent or almost opaque in places, and is of a greenish yellow color. Its heavy content of alkali gives it a very soapy, almost slimy, feeling, and over large areas there is a heavy covering of a yel-



Fig. 68. DEAD DUCKS (SPOONBILL, SPRIG AND TEAL) ON LEVEE NUMBER III  
IN TULARE LAKE, OCTOBER 2, 1913

lowish-brown mass of fermenting organic debris. The fish—carp, perch, bass, and catfish—of which the lake had a great abundance at one time, all died prior to the summer just past, the water becoming too stagnant for their existence.

In view of all these conditions, one can readily see that Tulare Lake does not now present the most favorable conditions for the existence of ducks or any other kind of water birds.

The more common species of birds observed in the immediate vicinity of the waters of Tulare Lake from September 19 to October 7, 1913, were as follows:

Ducks:

1. Spoonbill or Shoveller (*Spatula clypeata*).
2. Pintail or Sprig (*Dafla acuta*).
3. Cinnamon Teal (*Querquedula cyanoptera*).
4. Green-winged Teal (*Nettion carolinense*).

Farallon Cormorant (*Phalacrocorax auritus albociliatus*), few.  
White Pelican (*Pelecanus erythrorhynchos*), few.

Sandhill Crane (*Grus mexicana*), few.

Mudhen or Coot (*Fulica americana*), few.

Northern Phalarope (*Lobipes lobatus*).

Black-necked Stilt (*Himantopus mexicanus*), many at first, but became scarcer.

Avocet (*Recurvirostra americana*), few.

Killdeer (*Oxyechus vociferus*), few.

Sandpiper, several species.

Turkey Vulture (*Cathartes aura septentrionalis*), few.

The food supply for water birds around Lake Tulare was not the best. The cranes, pelicans, and cormorants had nearly all emigrated from this lake as there were no more fish for them to feed upon, the fish having, as previously stated, died some months before. But the ducks and smaller water birds were getting a fairly

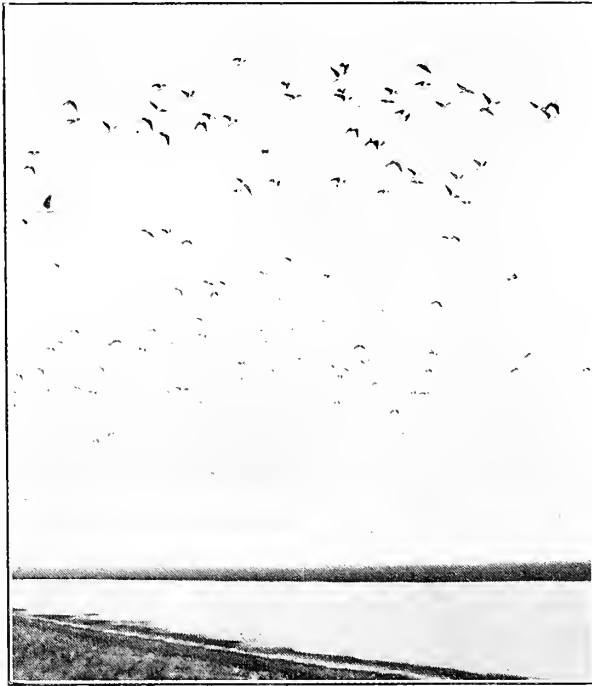


Fig. 69. BLACK-NECKED STILTS ON THE WING AT  
TULARE LAKE, SEPTEMBER 19, 1913

abundant food supply from the insects and worms in the lake. Several stomachs of well ducks showed that these birds had been feeding on aquatic insects and small worms. However, the ducks in this locality feed principally at night, in regions quite remote from the lake, and return to the lake for safety during the day. About dark these birds leave the lake and often fly long distances to cultivated fields where they feed on grain or alfalfa. When through feeding they return to the lake for the day. Their arrival may be during the night, but generally about daybreak or a little before. In making these flights large flocks are sometimes seen, but most frequently the flocks are small and broken.

Narrowing our discussion now to ducks only, we should first note the source from which these birds come. Most of them are not native to this state. They have come here from the north—from British America and Alaska. Some years

ago ducks bred in considerable numbers in the San Joaquin Valley. In 1907, for instance, Goldman (CONDOR, x, pp. 200-205) found conditions favorable for the breeding of water birds, and ascertained the nesting of seven species of ducks. But since the lakes and sloughs have undergone such marked changes, and since the former feeding and shelter grounds have been destroyed, there is no chance for them, and so we now find very few breeding in this part of the state.

It is impossible to give even approximate numbers of the ducks in the Tulare Lake region. Besides the dead there were many thousands of live birds on the lake at the time of our investigation. The accompanying photographs (figs. 67, 70) will give an idea of the numbers of birds which come together on the old levees during the day time. The writer feels safe in estimating that there were at least a quarter of a million ducks on the lake at the time of the investigation.

The disease of the present year first appeared during the latter part of July and was at the height of its course from about the first to the middle of September. By the 10th of October it was decidedly on the decline. This is in general the course of the epidemics of former years. That is, the first appearance is dur-



Fig. 70. CLOUDS OF DUCKS RISING FROM LEVEE IN TULARE LAKE; NOTE DEAD AND SICK DUCKS IN FOREGROUND, BOTH ON LAND AND WATER; PHOTOGRAPH TAKEN OCTOBER 3, 1913

ing the very hot summer weather, and the cessation is rather abrupt as the cool weather of the fall comes on.

Special pains were taken to count and estimate the number of dead birds on the lake. Our principal observations were taken on the north and west sides of the lake, where, it is claimed by some, there was less mortality than on the south side. However, it must be noted that the prevailing winds on the lake at this time of the year are from north to south; and therefore this factor may be responsible for the greater abundance of dead birds on the south side of the lake, because many carcasses are thus doubtless carried across the lake by the wind.

But because conditions on the north side of the lake were more favorable for our work, we selected that side for our purposes and consequently are able to give more data from this restricted locality than from elsewhere. The accompanying diagram and table are self-explanatory except that it should be noted that the levees, varying in width up to forty feet, are measured from the water line on one side of the levee to the water's edge on the other side. The counts

TABLE ENUMERATING DEAD BIRDS FOUND ON LEVEES I TO V INCLUSIVE, AS SHOWN IN ACCOMPANYING DIAGRAM (FIG. 72). NUMBER OF DEAD ARE SEEN TO HAVE BEEN STEADILY INCREASING DURING THE TIME OF THE INVESTIGATION

Date of count	Sept. 30	Oct. 1	Oct. 2	Oct. 3	Oct. 5	Totals
LEVEES	I	II	III	IV	V	
Teal	52	79	377	134	...	642
Pintail	25	55	166	325	...	571
Spoonbill	32	25	201	282	...	540
Sandpipers	2	7	27	10	...	46
Stilts	3	15	3	...	...	21
Coots	2	...	9	6	...	17
Avocet	...	4	7	...	...	11
Cormorant	...	...	6	2	...	8
Gulls	2	1	1	2	...	6
Pelican	...	...	3	...	...	3
Unclassified	...	...	...	...	214	214
Totals	118	186	800	761	214	

Grand total..... 2079

Average number of ducks per mile on first four levees, 467; average of all kinds of birds, 497. Numbers within levees not counted.

LEVEES: No. I Three-fourths mile long..... 0 to 25 feet wide  
No. II One mile long.....30 to 40 " "  
No. III " " " .....10 to 30 " "  
No. IV " " " .....10 to 25 " "  
No. V Half mile long.....20 to 30 " "

(Width of levees measured from edge of water on one side to edge of water on the other side.)



Fig. 71. SICK AND DEAD DUCKS ON LEVEE AT TULARE LAKE, SEPTEMBER 21, 1913; THE SICK BIRDS ARE UNABLE TO FLY OR WALK; THEY REMAIN IN THIS PARALYTIC STATE FOR SEVERAL DAYS BEFORE DEATH

made included just those birds which remained on the levees after our approach. No birds were counted which were able to scramble into the water and swim off: only those which were dead or too sick to travel were enumerated. Two men generally conducted the count,—one to call off the names of the birds, the other to tabulate them.

Of course it was impossible to estimate the number of dead birds on the lake from the numbers on the levees alone, because, in the first place, more birds died on the levees than elsewhere, the sick and well both making an effort to attain these resting places during the day; and, secondly, the strong north winds blew the carcasses of those dying on the water southward against the levees. In nearly every case there were more dead birds on the north and west sides of the levees

than on the south and east sides. Further, it was out of the question to count all the birds on any of the sections between the levees, as part of this territory was in heavy mud or under water. But taking into account the ducks on these areas and those on the levees, the approximated average for all the territory affected was about one to the acre at the very least. Then figuring 25,000 acres as the total area of this affected territory, we have a total result of 25,000 dead ducks, besides many other birds.

As stated above, ducks on the lake usually prefer to locate for the day on the old levees where these are very nearly submerged. Where great numbers of birds visited these levees, the latter soon became very filthy. Circumstances favored such conditions. The ground was a soft, black mud, full of

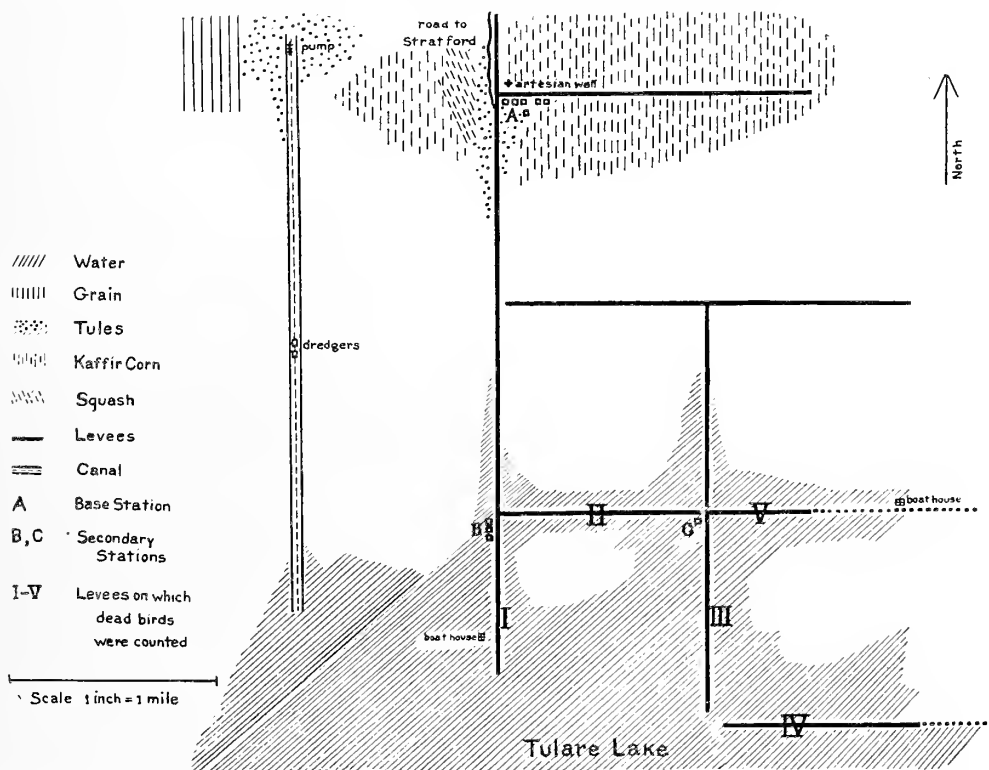


Fig. 72. DIAGRAM SHOWING NATURE OF COUNTRY WHERE EXPERIMENTS WERE CARRIED OUT, AND OBSERVATIONS MADE, ON DUCK DISEASE AT LAKE TULARE, SEPTEMBER 19 TO OCTOBER 7, 1913, BY THE STATE FISH AND GAME COMMISSION

decaying organic matter, consequently when visited by thousands of birds, sick and well, all paddling together, these levees became very foul. Sick birds, too weak to travel, were often found stuck in this mud, or even half buried in it.

The first symptom of the disease, so far as could be learned, was the loss of the power of flight. Following this, the birds became unable to walk. But even after losing this function, they were able to swim and dive for several days, sometimes almost up to the point of death. Paddling in the water never seemed difficult, but attempts to dive often failed to take the birds beneath the surface of the water. These functions, of course, were dependent on the condition of the birds. On becoming very weak many of the sick birds took to the levees where they might

rest. Here they would remain in one spot, often stuck in the mud, until death occurred. A later symptom of the disease was the development of a whitish-green or yellowish diarrhoea.

During the later stages of the disease the sick birds were often found barely holding the head up or with the neck and head extended out upon the ground as if dead. While in this languid state, and under conditions of great heat and dryness, the eyes often became closed due to the formation and drying of matter in them, the birds being unable to clean themselves. At times flesh flies deposited their eggs or larvæ in the corners of the eyes, and this doubtless gave rise to the opinion on the part of some people that the birds were dying from "worms in the eyes". The mouths and throats of the sick birds were often dry and parched, due to cessation of drinking and feeding.

When a large flock of ducks on a levee was approached, most of the birds would fly off while the invaders were still several hundred yards or a quarter of a mile away. But in these flocks it was nearly always to be noted that some of the birds would lose distance and lag behind in the flight, and often times



Fig. 73. MAIN CAMP (A) FROM WHICH EXPERIMENTAL WORK WAS CARRIED ON;  
NOTE KAFFIR CORN FIELD IN BACKGROUND

would alight after a short journey, apparently weak or disinclined to follow. Other birds would make no attempt to go when the main flock arose. On closer approach, these individuals, if on the water, would swim off with fair rapidity; if on land, those able to travel would make an effort to get into the water and swim off. Many would attempt to fly and, after half swimming and half flying for a distance, would gain wing and fly perhaps a quarter of a mile, but more likely only a short distance, when they would slow down quickly and flutter onto the water. Others would not clear the water at all, but simply race along the top of the lake creating a big commotion, splashing the water violently, often quacking loudly as they made every possible effort of head, wings and legs to get out of the way. If the enemy got too close, many would try to dive. Sometimes they would remain down in the water several seconds, even twenty or thirty seconds, and then come up in another place several yards away. But the more seriously stricken birds would not be able to get much more than the head out of sight. Sick birds out upon the lake could nearly always be recognized even at a considerable distance because they sat lower in the water, being water-logged, and not

infrequently their tails drooped in the water. These birds, becoming too weak to hold the head up any longer, naturally died by drowning.

Some of the very sick birds would make no effort to move even when picked up, while others, though unable to walk or fly, would flap the wings, stretch the neck forward and quack violently. In a majority of cases where the sick birds could make no headway at all, they would open and close the mouths with a sort of hissing noise if a person came near. But as this was emitted at other times, it was plain that this was not a symptom of the disease. Temperatures of the sick birds were subnormal, ranging from 99 to 105 degrees Fahrenheit, while the normal temperature is 107 degrees Fahrenheit.

Postmortem examinations revealed less than one would naturally expect to find. There were no intestinal lesions or hemorrhages below the stomach. Most of the organs appeared nearly normal. However, the stomachs were contracted, with rigid folds of the mucous membrane and muscles, and usually showed evidences of one or more hemorrhages, though not always. In most cases this inner lining, with parts separated from the tissues underneath, would show patch-

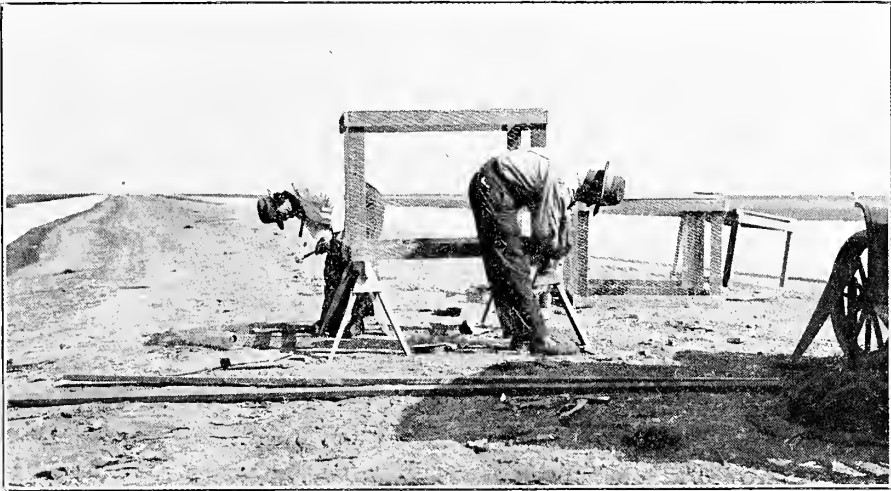


Fig. 74. DEPUTY GAME COMMISSIONERS MAKING CAGES FOR DUCKS TO BE KEPT UNDER EXPERIMENTATION; OCTOBER 24, 1913

es of a heavy necrotic growth and decomposition of the tissue. This was generally accompanied by a heavy viscid mucus at the anterior opening of the stomach.

As these and other minor symptoms indicated a slow poisoning of some kind, and as no disease-producing organisms could be located in the blood nor grown on agar, it was decided to carry on some experiments to determine if the water of Tulare Lake possessed the ingredients which were responsible for the malady.

Consequently a camp was temporarily established for this purpose on September 24 by deputy Fish and Game Commissioners Tipton Mathews and E. W. Smalley, on the north side of Tulare Lake. This camp was located near a small artesian well close to the southern border of a Kaffir corn field. It was just two miles from this camp to the edge of the lake. Three stations for carrying on experiments were established: one (A) at this camp, one (B) on the edge of the lake two miles directly south, and one (C) just one mile directly east of the second one (see fig. 72). Wire cages, four to six feet long, three feet wide and three

feet high, were constructed for holding the birds at these various places (see figs. 73, 74). The necessary food, shade and water were given according to the test to be performed. Operations were begun on September 25, 1913, and continued until the 8th of the following month.

Two dozen Spoonbill ducks were shipped down from the State Game Farm at Hayward, these birds being used as subjects and controls in the work. The following experiments and results were obtained.

(1) September 25 to October 7, 1913. Several dozen sick ducks were brought to station A, and put in cages containing fresh water and good food. Over ninety percent recovered completely.

(2) September 26, 1913. Three sick ducks were taken from the lake, placed in a cage on the edge of lake, and given good water and food. All three recovered completely.

(3) September 25, 1913. Two Spoonbill ducks from the State Game Farm

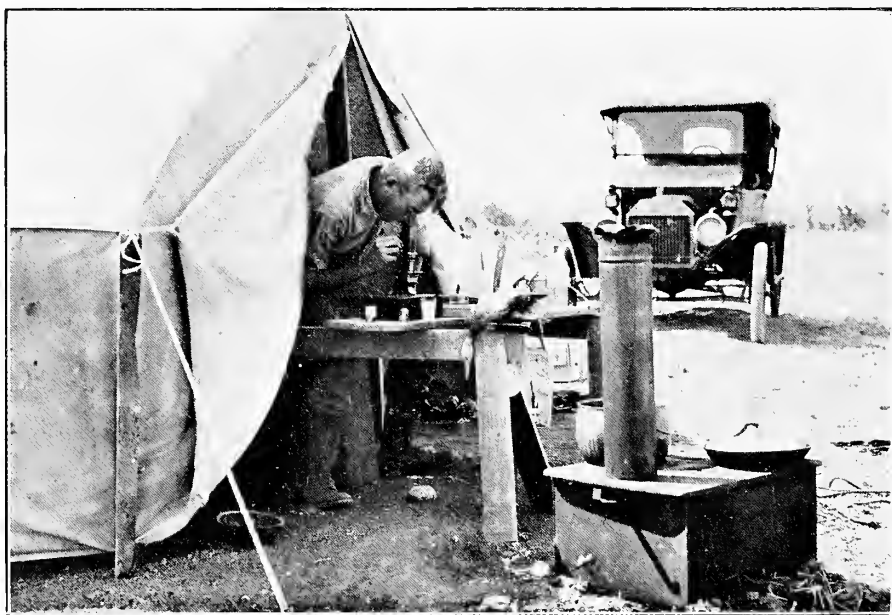


Fig. 75. THE WRITER OF THE PRESENT ARTICLE MAKING A MICROSCOPIC EXAMINATION OF THE BLOOD OF A SPRIG

were placed in a cage at station A, and given food, but unboiled lake water only to drink. Both died in less than four days with symptoms similar to those found dead on the lake. The experiment was repeated with like results.

(4) September 26, 1913. Two Spoonbill ducks from the State Game Farm were placed in a cage at station A and given food, and boiled lake water only, the water being boiled for one hour. Both died in less than four days, with symptoms similar to those found on the lake. The experiment was repeated with like results.

(5) September 25, 1913. Four Spoonbill ducks from the State Game Farm were placed in a cage at station A and kept on good food and good water. These were kept as controls. All remained healthy.

(6) September 27, 1913. Two normal birds kept at station A were injected

intravenously with  $\frac{3}{4}$  cc. of live blood from sick birds. No ill effects could be noted.

(7) September 25, 1913. Two Spoonbill ducks from the State Game Farm were placed in a cage at the edge of the lake. These were given good food and lake water. Both died in less than five days.

(8) September 25, 1913. Three Spoonbill ducks were placed in a cage at the edge of the lake. These were given good food and artesian water. They remained healthy.

(9) September 27, 1913. One normal duck (Spoonbill) was placed in a coop with the sick ducks at station A. It remained well throughout.

(10) September 27, 1913. One normal duck (Spoonbill) was placed in a coop with several dissected birds. On October 3 the bird got head in crack and strangled to death.

(11) Three birds were placed in a cage with good water containing chopped-



Fig. 76. REMAINS OF BIRDS, CHIEFLY DUCKS, ALONG SLOUGH AT NORTHEAST SIDE OF BUENA VISTA LAKE, KERN COUNTY, CALIFORNIA; COVOTES, COONS, ETC., HAD BEEN FEEDING ON THE DEAD AND DYING BIRDS HERE FOR TWO MONTHS OR MORE; PHOTOGRAPHED OCTOBER 9, 1913.

up parts of sick birds. Birds remained healthy.

(12) October 3, 1913. Three birds were confined in cage on lake. In cage, at water level, was set a platform, over which was placed a tight box, but containing entrance for birds. Artesian water and good food were provided. The experiment was to test effect on the birds of the gases which arose from the lake. This experiment was carried on only four days. Experiment not carried on long enough for definite results.

Thus, the examinations made and the experiments carried on tended to prove that the cause of the trouble lay in the lake water, either as a mineral or as an organic constituent.

At present, analyses of the water and gases of the lake are being made and experiments are being carried out to confirm or refute our conclusions regarding this duck disease. Some time will be required before all this data can be obtained.

## CONDITIONS AT BUENA VISTA LAKE

During the early part of September, Deputy Tipton Mathews of Wasco, California, visited Buena Vista Lake, in southwestern Kern County. At that time, ducks were dying very rapidly. Deputy Mathews, in walking from the shallower portions of the lake along a slough on the northeastern side, counted over 1500 dead ducks in less than one mile. In some places the dead almost touched one another. On October 9 the writer visited this spot. Few birds were then dying there, but the great mass of carcasses was simply appalling. The ac-



Fig. 77. SICK DUCKS REMOVED FROM BUENA VISTA LAKE AND PLACED ON FRESH WATER SOON RECUPERATED. THESE BIRDS WERE ENCLOSED BY PERPENDICULAR BANKS AND WIRE FENCING, THE FLIGHT FEATHERS OF ONE WING BEING CLIPPED TO PREVENT THE BIRDS FROM FLYING AWAY AS SOON AS WELL; PHOTOGRAPH TAKEN OCTOBER 9, 1913.

companying photograph (fig. 76) does not nearly do justice to the situation. Ducks constituted the main portion of the remains: still, many cormorants, pelicans, etc., were represented. A number of sick birds were obtained and examined. Postmortem showed conditions similar to those of the Tulare Lake ducks. Samples of the water of Buena Vista are being analyzed.

It is hoped that by further experimentation the specific factor of the malady may be brought to light, and that it may prove expedient to effect means by which this great loss of birds may be greatly reduced, or even prevented.

## FROM FIELD AND STUDY

**Two Stragglers on the Oregon Coast.**—*Plectrophenax nivalis nivalis*. Snow Bunting. On December 31, 1912, Mr. O. J. Murie collected one of these birds on the ocean beach at Netarts, Oregon. It was alone and no others were seen during ten days hunting in this vicinity.

*Salpinctes obsoletus obsoletus*. Rock Wren. On December 27, 1912, Mr. Murie collected a Rock Wren where it was running about over the drift-wood on the beach at Netarts. This is the first record, to my knowledge, of this wren occurring on the coast of Oregon, and the record in midwinter makes it doubly interesting.

Mr. Murie has kindly allowed me to publish these notes.—STANLEY G. JEWETT, *Portland, Oregon*.

**Nesting of the Band-tailed Pigeon.**—On August 11, 1913, while on a fishing trip to Bear Creek, the stream that empties out of Big Bear Lake in the San Bernardino Mountains, I accidentally discovered a nest of the Band-tailed Pigeon (*Columba fasciata fasciata*). The bird was flushed from the nest which was found to contain one nearly fresh egg. I waited for some time but the bird did not return to her nest. The nest was situated about ten feet up in a small oak tree, growing among pines on a very rugged mountain side at probably 5,000 feet altitude. The nest was a very flimsy affair, similar to the nest of the Mourning Dove but a trifle larger, and was composed of dry oak twigs. As this date of nesting seemed to me to be unusual I thought it of especial interest. The egg was collected and is now in my possession.

On this trip I only noted two other individuals of this species, one near the mouth of the Santa Ana Canyon and the other at the In-take in the same canyon.

During the summer of 1912 these birds were very common at Glenn Ranch Resort, Lytle Creek Canyon, San Gabriel Mountains, elevation about 3,500 feet. They were most common during August and the early part of September and were found feeding on the elder and coffee berries. This summer the birds were there only in limited numbers, although the feed was apparently more plentiful than in 1912.—WRIGHT M. PIERCE, *Claremont, California*.

**Late Nesting of Certain Birds in Arizona.**—I believe we collectors of eggs are inclined to stop active field work too early in the season, and thereby we miss a good many interesting and valuable finds. Last year I noted in the columns of THE CONDOR several late nestings and have several more to report for the season of 1913. My work this year has kept me in the Huachuca Mountains since the middle of July and I have made the following "finds":

Mearns Quail (*Cyrtonyx montezumae mearnsi*) were found nesting regularly during August. Several nests were shown to me by Mexicans. Fresh eggs were found as late as August 22, when I collected a set of eleven. Newly hatched young were found August 17, when a nest was visited which the preceding day held thirteen eggs. About 8:30 A. M. on the 17th we made a very careful approach and were rewarded by a beautiful sight. The male sat in the entrance of the nest with his head ducked down, while from between one wing and his back a little striped head protruded. Stooping I looked into the nest and there sat the female with one small chick on her back and a row of them poking their heads out all around her. This picture lasted but a moment for both parents fluttered away and the young crawled off into the grass and among the rocks. They were too small to walk, but crawled along with their chins on the ground. In a few moments they were well hidden and the nest held but the remains of thirteen broken egg shells. The last nest with eggs was found September 5 and held seven eggs on the point of hatching.

Another species nesting regularly during August was the Scott Sparrow (*Aimophila ruficeps scotti*). The last set was taken August 15 and the eggs were nearly fresh. A set of three Arizona Hooded Oriole (*Icterus cucullatus nelsoni*) was taken July 29. Incubation had proceeded about one-half. On September 2 a set of seventeen Scaled Quail (*Callipepla squamata*) was brought to me with eggs in varying stages of incubation, from about fresh up to some far advanced. As these were laid during a rainy period I am inclined to think that the bird began to sit as soon as the first few eggs were laid, which would account for the great variation in incubation.

On August 25 I noted a family of three Arizona Jays (*Aphelocoma sieberi arizonae*) as yet unable to fly. April is the regular month for the nesting of this species. On July 4, while looking for Sulphur-bellied Flycatchers' nests, I found a set of four almost fresh eggs of the Ant-eating Woodpecker (*Melanerpes formicivorus formicivorus*). Other nests of this species held young large enough to fly, or had already been deserted by the young. On August 11, I collected a set of three eggs of the Canyon Towhee (*Pipilo fuscus mesoleucus*) with incubation well begun. I have taken this species as late as October, however.

The late nesting of the Mearns Quail and Scott Sparrow may be accounted for by the fact that our rainy season begins about July 10, and the weed and grass seeds become more plentiful thereafter. Mearns Quail shot in September had pieces of acorn kernels in their crops. The late nests of the other species must be considered as individual eccentricities.—FRANK C. WILLARD, *Tombstone, Arizona*.

**The Sabine Gull in the Santa Barbara Channel.**—On August 11, 1912, I saw a flock of eight or ten Sabine Gulls (*Xema sabini*) in the Santa Barbara Channel, about ten miles from Santa Cruz Island. On August 1, 1913, I saw another flock between Santa Cruz Island and Santa Barbara; and again on August 4 and 7 a flock was sighted. On the last

date the birds were seen about five miles from Santa Barbara. This would indicate that this species is quite a common late summer transient through these waters.—HOWARD W. WRIGHT, *Stanford University, California*.

**Nesting Notes from San Diego County.**—On March 27, 1913, a pair of Pacific Horned Owls were found nesting about two miles down the Sweetwater River from Dehesa and upon rapping upon the tree the female was flushed. The three young were rather large and partly feathered. As the old bird left the nest a pair of Red-bellied Hawks set out in pursuit. One continued to chase the old owl, while the other hawk returned and robbed the nest of one of the young owls. This was torn to pieces and eaten in a nearby tree. The day before I had robbed the Red-bellied Hawk's nest of three eggs. This was located about a quarter of a mile up the river. On returning to the locality a week later there was only one young owl left.

On July 21, 1913, at Lemon Grove, while picking some fruit in a nearby orchard, I was surprised to hear the "purt, purt" of an Arizona Hooded Oriole in an adjoining palm tree. I was still more surprised on finding a partially completed nest swung to the underside of a lower leaf of the same palm. July 30 the nest contained one egg, with the female sitting. On August 4 I took the nest and 3 eggs, the latter varying considerably in incubation. This is the best marked set I have ever seen.

August 7, 1913, at Lemon Grove, a neighbor called my attention to a nest of Western Mockingbird not over twelve feet from his kitchen door and right over the sidewalk. It was in a eypress tree ten feet above the ground and contained four fresh eggs which I took. This was the fourth laying of this year known to me. The first, of four eggs too far advanced to blow, was handed to me by the same man April 9. It was taken from an ornamental pine tree near the front door. The middle of May I saw the old birds feeding young, and again the second week in July I saw them feeding young; but I think a pet cat caught this brood.—LAURENCE M. HUEY, *San Diego, California*.

**Dry Season Notes.**—In this year of unusual drought the fish-eating birds are having a lean time of it in the interior and are often hard pushed to make a living. Wild ducks are to be seen frequenting shallow, alkaline ponds that they would turn up their noses at in ordinary years, and dabbling in the foul mud for what insect life there may be there. Farallon Cormorants (*Phalacrocorax auritus albocillatus*) and White Pelicans (*Pelecanus erythrorhynchos*) cruise about in a restless manner, endeavoring to "fill up their beak with food for a week" in the most unpromising places; while the herons scatter far and wide in hopes of picking up a stray minnow or frog here and there.

Ordinarily our rivers overflow their lower banks in the spring time, and the carp, minnows, etc., spread out into the submerged lowlands to spawn. The result of this is that as the waters recede in summertime the young fish collect in the small sloughs and depressions. The areas of the water surfaces shrink from day to day until finally there are left only small, evil-smelling pools so shallow that one can see the backs of the small fry sticking above the surface. The fishes are so numerous that they may be said to actually swarm. During this period the heron families grow fat in such spots, with no exertion whatever! But this year there has been no overflow, and those fish that spawned did so only in deep water; so the poor herons have to get out and "hustle" for a living, taking a chance at catching a few stray fish that are foolish enough to come into the shallow water near the banks of the rivers.

I was much astonished a few days ago, on September 19, 1913, to be exact, to see three California Brown Pelicans (*Pelecanus californicus*) come sailing over our house and light on the lake a few yards away. This is the first time I have ever seen this species in the interior, as it seems to stick to the seacoast almost exclusively. The birds were so near that there was no possible chance of making a mistake as to their identity.

Where the water-loving species of blackbirds nested this year I do not know, but certainly they have not been with us in their usual numbers, doubtless because there were no tule ponds or overflow lands for them to nest in. The Bicolored Blackbird (*Agelaius phoeniceus californicus*) did breed to some extent in the dry weeds and small willows, but were not at all numerous at nesting time.—JOSEPH MAILLIARD, *Rancho Dos Rios, Stanislaus County, California*.

**Note on the Guadalupe Caracara.**—During the past summer Captain Charles E. Davis, of Los Angeles, has made several trips to Guadalupe Island, off the coast of Lower California, for the purpose of taking moving pictures of the sea elephants found around the island, and also to capture alive some of the younger animals. In a conversation with the

writer he made a statement which seems of sufficient interest to repeat. Hearing that the island had been visited by two men who had killed several of the sea elephants, which he had been at some pains to protect, he at once hastened to the spot to ascertain the amount of the damage. On landing on the beach where the killing had been done, he found the place reeking with the decomposed remains of five or six of the animals. He had already remarked to me upon the noticeable scarcity of birds along the shore of the island, as compared with the abundance of water birds elsewhere, but he further stated that as he landed several gulls flew up from the carrion, and with them two or three dark-colored birds, which he described as apparently crosses between an eagle and a turkey buzzard. This remark, coming from a man ignorant of a caracara, without prompting from myself, and not dwelt upon by him afterward, is at least suggestive of the possible persistence up to the present time of the supposedly extinct Guadalupe Caracara (*Polyborus lutosus*).—H. S. SWARTH, *Museum of History, Science and Art, Los Angeles, California.*

**Sharp-shinned Hawk Nesting in Arizona.**—On May 30, 1907, I collected a set of four eggs of the Sharp-shinned Hawk (*Accipiter velox*) from a nest in a small fir tree in Miller Canyon, Huachuca Mountains, Arizona, at an altitude of about 6,800 feet. Incubation was begun. The female sat very close and hung around close by while I collected the egg.—FRANK C. WILLARD, *Tombstone, Arizona.*

**Note on the Ashy Petrel.**—On August 3, 1913, I visited the Painted Cave on Santa Cruz Island and made a thorough search for the "nests" of the Ashy Petrel (*Oceanodroma homochroa*). I could find nothing but a few egg shells, which would indicate that the birds either bred earlier, or else did not breed there at all this season.—HOWARD W. WRIGHT, *Stanford University, California.*

**Three New Birds from Eastern Oregon.**—In working over a collection of bird skins from Harney County, Oregon, collected by Mr. Wm. L. Finley during the summer of 1908, I found specimens of the following birds which I believe have never been put on record as occurring in this State. The identifications were made by Mr. Joseph Grinnell and Mr. H. C. Oberholser.

*Empidonax griseus*. Gray Flycatcher. Two adult specimens in worn summer plumage taken in the open sagebrush country near Wright's Point, about fifteen miles south of Burns, on June 25, 1908.

*Amphispiza bilineata deserticola*. Desert Sparrow. Two adult males taken at Wright's Point on June 24 and 25, 1908.

*Hylocichla fuscescens salicicola*. Willow Thrush. One adult male taken in the willows along Silvie's River near Burns on June 24, 1908.—STANLEY G. JEWETT, *Portland, Oregon.*

**Spotted Owls in San Diego County.**—On June 22, 1910, while hunting on Palomar Mountain, San Diego County, California, a strange object was seen moving in an oak tree about sixty feet above the ground. On closer observation its identity became more uncertain; although I whistled several times it did not move. I finally decided to shoot and was astonished at the downfall of a dried gray-squirrel carcass. The animal had evidently been killed or had died lying crossways on a large limb. Its tail waving in the wind was the feature which had attracted me.

At the same moment of the gun's explosion a large bird was seen to flop on the next limb directly above where the squirrel's dried carcass had hung. Not being able to recognize the bird I decided to watch, and after a few minutes an owl was seen to cautiously peep over the edge of the limb. It eyed me first with one black eye and then the other. I shot it, and on picking up the specimen was surprised to identify a full-plumaged Spotted Owl (*Strix occidentalis occidentalis*).

The following year, 1911, on the same date, June 22, and in the same locality, a party of us had planned to go to a nearby hillside where tiger lilies were known to grow, and, being rather on the lookout for specimens, I took my gun. All of us were busily engaged in digging the bulbs of the lilies, when a sudden "ow-w-w-ow" brought me to my feet, gun in hand, and after cautiously peering in all the surrounding trees a Spotted Owl was seen perched near the top and very close to the trunk of a small cedar tree about forty feet high. Not wishing to shoot the bird to pieces my aim was made a little to the side. The shot dropped a wounded bird and while I was occupied in extinguishing its life a clamorous call from a member of the party proclaimed the location of a second owl. I quickly dropped the first bird, grabbed the gun and soon had two owls to my credit. The last one was also perched near the trunk and very close to the top of a small fir tree about 60 feet high.

These birds were in moult, one having a single tail feather, and the other none at all; they were a pair and probably had raised a brood early in the spring. Further examination made positive that this spot had been their roosting place for some time past. The stomachs of these birds were entirely empty, giving no evidence of what their food might have been in this locality.—LAURENCE M. HUEY, *San Diego, California.*

# THE CONDOR

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## EDITORIAL NOTES AND NEWS

At the recent congress of the American Ornithologists' Union, in New York City, November 11, distinction was conferred upon three Pacific Coast men. Joseph Mailliard was elected Fellow, and W. Lee Chambers and George Willett were elected Members. Mr. Mailliard's election is the first to the class of Fellows, as far as this coast is concerned, since that of Walter K. Fisher in 1905.

Mr. L. E. Wyman, recently of Nampa, Idaho, has removed to Los Angeles, where he is in charge of the work of excavating the fossils at the Rancho La Brea, for the Museum of History, Science and Art.

The Cooper Ornithological Club has been honored through the appointment of Mr. George Willett of Los Angeles as Inspector under the new Federal Migratory Bird Law. In explanation it may be said that the plan worked out by Dr. T. S. Palmer and those others of the Department of Agriculture in whose hands rests the administration of the law, involves the division of the United States into thirteen districts, each to be in charge of an experienced inspector and a force of about 25 picked men selected by the state game commissions. The California District, of which Mr. Willett is to be Inspector, includes also Nevada and Arizona. The task of putting the new law into effect concerns every State in the Union and is one of the greatest ever attempted in the history of game protection. We congratulate Mr. Willett upon his appointment, and wish him all success in his new office.

The friends of Mr. Joseph Dixon are much concerned over his failure to return home this fall from his Alaskan trip, as expected. It is now practically certain that the *Polar Bear*, the vessel in which Dixon's party was exploring the arctic coasts of Siberia and Alaska, has been frozen in for the winter somewhere east of Point Barrow. No word is likely to be received from the party before the ice breaks up, next July or August. Dixon will certainly have abundant opportunity to study and collect whatever animal life is available around his winter quarters. It is to be earnestly hoped that no mishap or extraordinary hardship overtakes his party, and that he returns to us in due time with sufficiently valuable results to compensate him for his long and involuntary isolation.

Attention of all Cooper Club members is hereby directed to our Business Managers' announcements on inside front cover of this issue. Material and prompt response to their requests is recommended as being in line with the continued success and activity of the Club and its publications.

The Biological Survey announces with deep regret the death of Major John Fletcher Lacey, a member of the Advisory Board on Migratory Birds. According to press dispatches, Major Lacey's death, due to apoplexy, occurred on September 29, 1913, at the age of 72, at his home in Oskaloosa, Iowa.

During the sixteen years in which he served in Congress, 1889 to 1891, and 1893 to 1907, he was connected with most of the measures relating to conservation. One of the earliest statutes which he assisted in passing was the Act of May 7, 1894, protecting birds and animals in the Yellowstone National Park. As author of various bills protecting game he early became known as the "Father of Federal Game Legislation". Following are some of the more important measures for the protection of wild life which he introduced and which are now on the statute books: The act which bears his name, regulating interstate commerce in game, 1900; the first Alaska game law, 1902; the act creating the Wichita Game Refuge in Oklahoma, 1905; the appropriation for the herd of buffalo in the Yellowstone Park, 1905; the National Monuments Act, 1906; the law protecting birds on bird reservations, 1906.

During his chairmanship of the House Committee on Public Lands in 1904, he became deeply interested in the first bill for the protection of migratory birds, introduced by Hon. George Shiras. Later, after his retirement from Congress, he devoted considerable study to this question and proposed certain amendments in what is sometimes known as the Lacey Modification of the Migratory Bird Bill, introduced in the House by Hon. John W. Weeks on May 28, 1909.

His keen interest in game legislation continued after his retirement to private life and on at least two occasions he was actively interested in the passage of important measures. Early in 1909 he appeared before the Committee which codified the penal laws and

a few days before the bill passed took part in putting the finishing touches on the provisions of the Lacey Act incorporated in that Code. Later he took an active part in securing an increase in the appropriation for the maintenance of the buffalo herd in the Yellowstone Park.

In recognition of his interest in the protection of migratory birds he was recently appointed a member of the Advisory Board and was to have been present with other members of the committee at the hearing in Omaha on August 6, but was prevented by absence in California. Always interested in any measure for the conservation of wild life and ready to assist to the utmost of his ability, Major Lacey was a staunch friend of the Department, an earnest advocate of wild life conservation, and a singularly effective worker in this field. It is unfortunate that he could not have lived a few days longer to have learned the outcome of the measures for the protection of migratory birds and the plumage clause in the Tariff Bill, in which he was much interested.—T. S. PALMER, *Assistant Chief, Biological Survey*.

#### PUBLICATIONS REVIEWED

A REVISION OF THE GENUS *CHAEMEPELIA*. By W. E. CLYDE TODD. (*Annals of the Carnegie Museum*, VIII, May 8, 1913, pp. 507-603).

This is a careful and thorough revision of a difficult group of birds, and one leaving little to be desired in manner of treatment. The author had at his disposal "no less than nineteen hundred and twenty specimens of this genus, representing all of the known forms, and including a number of types", a quantity of material sufficing for a satisfactory solution of most of the problems involved.

Five species are recognized in the genus, *passerina*, *minuta*, *buckleyi*, *talpacoti*, and *rufipennis*. A sixth species, *Columba cruziana* Prevost and Knip, generally placed in the genus *Chaemepelia*, is here made the type of a new genus, *Eupelia*. *Chaemepelia* and *Eupelia*, with five other genera, are placed in the subfamily Claraviinae, corresponding to Salvadori's Peristerinae. *C. passerina* is divided into sixteen subspecies, *minuta* into two, *rufipennis* into two, while *buckleyi* and *talpacoti* each remains undivided. Three new South American subspecies of *passerina* are designated, *parvula* from central Colombia, *nana* from western Colombia, and *quitensis* from Ecuador; and *C. minuta claeodes* is described from Costa Rica.

In the treatment accorded the North American forms of *C. passerina* certain changes are noted from the arrangement in the A. O. U. *Check-List*. The bird of the southeastern United States once more receives the name of *passerina*; *C. p. bermudiana*, of Bermuda, is relegated to the synonymy of *C. p. bahamensis*,

which is itself considered as but poorly differentiated from the Cuban bird.

The critical, detailed discussions of the various forms contain much that is interesting and suggestive, and will undoubtedly prove most helpful to future workers in the group. The exceedingly thorough bibliographical research carried out by the author has borne its fruits in the satisfactory solution of various nomenclatural puzzles of long standing.

The paper closes with a table of the average measurements of the various forms, and a list of the skins examined, with the source of each specimen.—H. S. SWARTH.

A STUDY OF THE NESTING BEHAVIOR OF THE YELLOW WARBLER (*Dendroica aestiva aestiva*). By HARRY C. BIGGLESTONE. (*Wilson Bulletin*, XXV, June, 1913, pp. 49-67, 5 tables).

In the *Wilson Bulletin* for June, 1913, is to be found a most notable article on the nesting behavior of the Eastern Yellow Warbler. The paper records observations made by Harry C. Bigglestone from a blind near the Macbride Lakeside Laboratory on Lake Okobogi, Iowa, during the summer of 1912. The nest was discovered before the set of eggs was complete and after hatching was watched continuously during hours of daylight until the young had flown. During the eight days involved the author received relief from other students in the laboratory at meal times and other periods of the day, thus lightening the tediousness of the task.

The patience displayed was certainly rewarded by the results obtained, for the reviewer can think of no paper which has furnished so much valuable information as to the details of the nesting behavior of any single bird. Even such minute details as the way in which the hatching bird frees itself from the shell and the time taken for this operation are recorded.

By marking the young warblers with colored strings tied about the leg, the author was able to keep track of the amount of food each was fed. Tables show the number of visits made by the parents, the distribution of food by days, and the distribution of food to the different nestlings. A total of 2373 visits with food were made, even though feeding was left entirely to the female during the last few days. The food was found to be made up entirely of insects, "green worms" being the largest item.

Under the heading of sanitation are recorded many interesting facts regarding the removal of excreta. For the first few days the parent birds usually ate the excreta, but later it was carried away. The egg-shells were all eaten. A table gives the total number of excreta sacs, together with their disposal.

Miscellaneous notes bearing on the capture of one of the young by a garter snake, the stereotyped method of approach to the nest used by the parents, notes as to the behavior of the nestlings, and a summary, conclude the paper.

The nest and nestlings being under continual observation for 144 hours and 53 minutes established an enviable record. If there are other ornithologists seeking for something difficult to do and something much worth while, let them go and do likewise.

Students of animal behavior will be interested in the suggested modifiability of behavior brought about by artificial conditions. Laboratory methods for the study of animal behavior are greatly emphasized at the present time. Such a paper as this, however, makes us ask the question whether first-hand information gained as this was is not vastly superior and more dependable than similar information which could have been gained by laboratory experiments. The artificial conditions which surround laboratory experiments on higher vertebrates, even though proper controls be used, usually make the results less dependable. The field method has the added advantage also of a comparatively small equipment.

The limited amount of available information regarding the life-histories of our song birds becomes apparent only to those who attempt to search into the subject. To those who appreciate the dearth of material such papers as the one before us give encouragement and bring hopes that their advent but presages increased activity in this field.—H. C. BRYANT.

LIFE ZONES AND CROP ZONES OF NEW MEXICO. By VERNON BAILEY. (North American Fauna No. 35, Sept. 5, 1913, pp. 1-100, pls. I-XVI, 6 figs. in text).

A great deal of valuable information is concentrated in the small compass of this publication, which is a brief but comprehensive survey of the subject. The life zones found in New Mexico are Lower Sonoran, Upper Sonoran, Transition, Canadian, Hudsonian, and Arctic-Alpine. Each is treated separately, first with a general account of the nature of the country covered, this followed by nominal lists of the mammals, birds, reptiles, and plants peculiar to the division, and similar lists of the fruits, vegetables and other crops most apt to thrive. Following this classification of the life zones is a series of descriptions of the more important mountain ranges of the state.

The ornithological matter contained in the publication is limited to nominal lists of the breeding birds of each zone, and similar lists of the species occurring in the various mountain ranges. Transients and winter visitors

are not included, as having no bearing upon the subject of the report. We understand, however, that the animals of the state are to receive more detailed attention in future papers, which they certainly deserve, as pertaining to a portion of North America which hitherto has not received its fair share of attention from naturalists.

More explicit statements of the manner of occurrence of certain species may be expected to explain what at present appear to be some rather puzzling discrepancies in the status of the same birds in New Mexico and at points farther west. Thus the Scott Oriole (*Icterus parisorum*) is here listed as Lower Sonoran, while in the experience of the present reviewer it is in Arizona and California most emphatically Upper Sonoran. Similarly the Cooper Tanager (*Piranga rubra cooperi*), given as Upper Sonoran, is in Arizona a characteristic bird of the Lower Sonoran wooded river beds, while the White-rumped Shrike (*Lanius l. excubitorides*), also here considered as Upper Sonoran, is in Arizona and California at least as abundant in the Lower Sonoran valleys. There are other similar cases.

The doubtful inclusion of the Calliope Hummingbird (*Stellula calliope*) among the breeding birds of the Canadian Zone of New Mexico is probably another instance of the extension of a hummingbird's breeding range from the appearance of migrating individuals, usually adult males, at distant points before the breeding season is fairly over.

On the whole, however, these lists of the birds, as well as those of the other components of the fauna and flora of the state, the carefully worked out results of extensive and painstaking field work by an admitted authority on the subject, may be taken as practically final. The above comments by the reviewer on certain species are directed not as criticisms of statements made, but rather to call attention to the various conditions under which species have been found in different portions of their habitats.

The numerous plates and figures are well selected to illustrate the nature of the country, while the accompanying colored map of the life zones of the state, of unusually large size, is apparently most carefully worked out as regards the finer details.—H. S. SWARTH.

BIRD STUDY NOTE BOOK. By CLARA COZAD KEEZEL. (Published by the author, Garnett, Kansas).

This title appears on the cover of a little note book carefully prepared to meet the needs of the growing number of students interested in bird life. It is arranged in columns appropriately headed for entering the name of the bird, date of arrival, residence (winter,

summer, or permanent), conspicuous colors or markings, principal food, kind and location of nest. There then follows a larger space in which to enter any notes of special interest in regard to habits, song, nesting, economic value, etc., of the bird observed. The first page of the book contains a brief preface stating its aim and giving a short bibliography on birds of particular value in school work, while the last page contains pertinent suggestions for bird study in schools.

By adhering to these few most important topics, the author has been able to produce a book which is concise and simple, yet of sufficient size to hold at least two years' records, so that interesting and useful comparisons may be made.

The Bird Study Note Book is the outcome of several years' experience on the part of the author, and we are glad to learn that it has been successfully used in one of the Kansas schools for the past four years. We believe, with the author, that the school room is, perhaps, the most important place to disseminate knowledge of the value of bird life, and to arouse interest for the protection necessary to preserve our native birds.

Although this note book is particularly adapted and prepared for the use of pupils of intermediate and grammar grades, it is well worthy of recommendation to any bird student who realizes the value of keeping actual records from day to day.—MARGARET W. WYTHE.

THE BIRDS OF VIRGINIA | by | HAROLD H. BAILEY | [vignette] | with fourteen full page colored plates, | one map, and one hundred and eight | half-tones taken from nature | treating one hundred and eighty-five species and subspecies: | all the birds that breed within the state. | 1913 [our copy received September 1] | J. P. Bell Company, Inc. | Publishers | Lynchburg, Va. | 8vo, pages xxiii + 362; illustrations as above.

Our fellow Cooper Club member, and former Californian, Harold H. Bailey, has "done us proud" in putting out one of the most attractive bird books of the year. The above transcript of the title gives a good idea of the nature of the work as regards illustrations. The text deals in a concise way with those birds which have been found nesting within the borders of Virginia.

Naturally, as being an enthusiastic oologist of the old school, Bailey's chief effort is to present his readers with important facts in regard to the nesting habits and eggs of the birds dealt with. Still, there is much useful information of a more general nature, especially as regards economic status, all of which is selected with a view to securing popular interest in bird study in a state in which field

naturalists are apparently few in number.

Of course the reviewer is able to find points to criticize. Has there ever appeared a bird book entirely above *someone's* criticism? The most serious fault to be found with the book in our minds concerns not its ornithology, but its grammar — which, frankly, is in places atrocious! This fault could have been obviated by recourse to editorial supervision, and it is to be hoped that this will be attended to in future editions.

One other possible criticism is the inclusion of photographs of western subspecies or even species (as the burrowing owls on page 138), with nothing to indicate to the uninitiated that they are not from Virginian subjects.

This western tang is more pleasingly evidenced on page 86, where is presented the reproduction of a photograph by W. Otto Emerson showing a typical collector's camp, with that now long lamented ornithologist, Walter E. Bryant, in characteristic attitude. Many of us "middle-aged" bird people share with Mr. Bailey the fondest of recollections of the days when we gained knowledge and inspiration from W. E. Bryant.

As to the facts set forth in the work under review, Harold H. Bailey is absolute authority in his field. And it is needless to say that no well conducted library of ornithology will long remain without a copy of his "Birds of Virginia".—J. GRINNELL.

CATALOGUE OF A COLLECTION OF BOOKS ON ORNITHOLOGY IN THE LIBRARY OF JOHN E. THAYER; compiled by Evelyn Thayer and Virginia Keyes (Boston, privately printed, 1913; 8vo, 188 pages. Copy received September 8).

Approximately 1200 titles appear in this catalog, this large number suggesting the probability that Mr. Thayer's is the most complete private ornithological library in America today. *Auduboniana* are excellently represented; and there are many other fine things, such as Wilson's *Aves Hawaiensis*, the almost complete works of Gould, etc., etc.

Bibliographically the Thayer Catalogue is not above criticism. There is lack of uniformity in treatment, and not a few errors are in evidence. In a number of cases the titles of separates are entered as if they were individual works, without indication of their true connection. However, the Catalogue is evidently not at all intended as a technical exposition of its subject.

There is a growing present-day tendency towards the adoption of book-collecting as a mind recreation on the part of men of means who have also a scientific trend of thought. In some cases the attention of the collector is absorbed wholly by books as objects of ac-

quisition; that is, animal "specimens" are not included. This tendency is to be looked upon with favor, and should be encouraged in every practicable way.

Books, as records of facts, are doubtless far more lasting than "specimens." The latter rapidly deteriorate with time and at best are only partial records, even though originally essential for the accuracy of much of the printed record.

Incidentally a distinct service is rendered the cause of science by private book collectors, in that rare volumes are gathered from obscure and unappreciative sources, and usually renovated by re-binding as well as being housed under the safest of conditions. The lives of these volumes thus become insured for much longer time than would likely otherwise be the case. Sooner or later, too, private collections find their way into public repositories where the field of their usefulness widens.

Another factor worth considering is that collectors of books on ornithology nowadays have the satisfaction of knowing that what money they put into their hobby, if discriminately spent, has been well invested; the market value of even some quite recent publications has doubled or even trebled within a very few years.

Mr. Thayer's catalog is an incentive to interest on the part of others along this line, and we welcome it. The reviewer, for instance, has taken great pleasure in running over the titles in comparison with the contents of his own modest collection.—J. GRINNELL.

THE AUK.—The July number of *The Auk* sustains the usually high character of that magazine as a record of ornithological discovery and scholarship. The latter element predominates in Stone's review of William Bartram's bird migration records. The writer comes to the conclusion, based on an exhaustive study of Bartram's journals, that in the case of 26 species of the commoner birds of Philadelphia no appreciable change in the time of their arrival has taken place in the past century. This conclusion, necessitated no doubt by the data at hand, is a little surprising, not to say disappointing, for we had supposed that the unquestioned "northward trend of species" would have shown itself in noticeably earlier spring arrival as it has in extended breeding ranges.

Forbes' review of Brewster's observations on the flight of gulls (recorded in *The Auk*, for January, 1912) is little more than a dogmatic reassertion of the mathematical *impasse* which has always ended the discussion of this subject. As the author himself admits, his general denial of the possibility of the advantageous 'resolution of forces' by a bird glid-

ing against a horizontal wind does not account for all the factors in Mr. Brewster's record. It does not account, namely, for the behavior of birds so far removed from the ship that ascending currents caused by the passing ship could not have been a factor. This difficult subject is not yet susceptible of explanation, but we do need further and exhaustive records of fact.

Careful, scholarly work appears in Cameron's continuation of "Notes on Swainson's Hawk in Montana" and in Tyler's account of "A Successful Pair of Robins". By the way, what an inordinate amount of attention is being paid these days to excrementation and the parental disposal of faecal sacs! The magazines are full of it. It is all very necessary, we suppose, but one cannot help hoping that the values of this particular phase of paedolatry may be settled presently so that we can pass to pleasanter topics.

Miss Sherman's painstaking study of "The Nest Life of the Sparrow Hawk" again caps the climax of scholarly research. We have in Miss Sherman a shining example of how purposeful leisure may be profitably employed in the further consideration of some of the most familiar ornithological subjects. We hope to see one day from her pen a collected series of these stimulating bird studies.

Scholarship again is the note of Swarth's review of "The Status of Lloyd's Bush-tit as a Bird of Arizona," and his studies seem to establish the fact that *Psaltirparus melanotis lloydi* is not a bird of Arizona, and that the bird once described as *P. santaritac* was a juvenal phase of *P. plumbeus*.

Three faunal lists and a brief anatomical article conspire with "General Notes" and extended book reviews to make this a most creditable number, while Abbott H. Thayer's "periodical warning" that both he and the theory are alive and cheerfully defiant gives that touch of piquancy which we relish in the staidest of journals.—W. L. DAWSON.

BIRD-LORE has come to be a magazine of which its sponsors may well be proud, and its bi-monthly visits, indispensable now as always to conservationists, are an honest joy to all bird students whether veteran or amateur. Florence Merriam Bailey contributes the leading article to the September-October (1913) number and it is as chock full of interest as it is of information concerning the Long-eared Owl. In our opinion Mrs. Bailey is one of the most gifted and refreshing interpreters of bird-life now before the public. She has in addition to keen and disciplined powers of observation a vivacious style and that sprightly quality of imagination which makes it really worth while for us to view life through her eyes. This owl

study exhibits Mrs. Bailey in her happiest vein.

John Woodcock shows a splendid photograph of Sharp-tailed Grouse obtained by him in Manitoba and we rejoice with him, in a page and a half of print, that this difficult and decreasing bird has been brought to camera. Maunsell S. Crosby has a few crisp notes on a pair of Holboell Grebes captured and photographed at Rhinebeck, N. Y., and Arthur A. Allen of Ithaca details an entertaining experience with a pair of nesting Blue-headed Vireos.

The Migration and Plumage studies are concerned this month with the Harris and the Golden-crowned Sparrows. In this connection we are pained to note a glaring inaccuracy in the descriptive title of the colored frontispiece. The plate in question is a well executed piece by Louis Agassiz Fuertes depicting an adult and an immature bird of each of the above-named species. The adult in each instance is labelled "adult male," and the immature bird (whether male or female, matters little) is declared to be an "adult female." Of course this blunder is not chargeable to Fuertes who knows his birds as we know our letters, nor to Chapman who refers to the figures correctly in his text further on. It must be due, therefore to some irresponsible third party to whom this important task was entrusted. In a magazine which caters especially to youth and from which our young people are likely to receive impressions which cannot be shaken off, such a misleading sign-board at the beginning of the path is peculiarly unfortunate.

In reviewing our own CONDOR (July-August, 1913) the veteran critic, "T. S. P.," to whom we owe an ancient debt of gratitude for generous consideration and liberal praise, devotes considerable space to Dawson's article, "The All-Day Test at Santa Barbara" and expresses his dissatisfaction with methods and tendencies therein displayed. In the first place he deprecates the use of the automobile as an aid to bird study, though whether he considers that this device takes an unfair advantage of the birds or whether he harbors the suspicion, in common with certain clergymen, that "one of the automobile crowd" must, *ipso facto*, be addicted to high balls and therefore liable to see birds double, our reviewer fails to state. Moreover, he suspects the "accuracy of results when Sandpipers, Linnets and Redwings are recorded by hundreds, when only eight meadowlarks and four English Sparrows were observed in comparison with 40 Black-headed Grosbeaks." This is amazing, perhaps, to one not thoroughly conversant with local conditions at Santa Barbara; nevertheless we need only to remind "T. S. P." who *was* a Californian

that Sandpipers, Linnets and Redwings are precisely the birds one does see by hundreds; that Meadowlarks are busy feeding first broods by May 5th and so are silent and secretive; that Black-headed Grosbeaks were excessively abundant last spring; and that presumably because of the pre-occupation of the field by Linnets, the English Sparrows have never found effective or numerous lodgement in Santa Barbara. One has actually to *hunt* for them. Beyond this, however, there seems to be a real ground of misunderstanding as between Palmer and Dawson as to what constitutes the proper object of an all-day test. Dr. Palmer is influenced by the Bird-Lore census standards where enumeration of *individuals* has always been deemed the important thing. Dawson has always stood for the enumeration of *species* as the important thing in these all-day tests and he designated the results so obtained as *horizons* some time before "bird censuses" were talked of. The figures placed opposite the names in the CONDOR list were, therefore, approximate and not intended for summation, although the writer was, perhaps, at fault in not having so noted. That this is the ground of misunderstanding appears further. "Rather it would seem that combined observations of several persons in a definite area where each could take time to cover his territory thoroughly and follow up and observe the various birds, would give a better idea of the number of species and individuals present on a given date." No doubt, but that is to change essentially the character of the institution under consideration and to criticise it not for what it is but for what it is not. An extended and painstaking census is one thing, and a very good one in its way, but a "bird horizon" is a different thing and also very good. In a bird horizon one tests not only the resources of a given region but he tests his own resources, his ability to find the birds and to recognize them when found under certain definite limitations of time. It is, confessedly, a sort of sporting proposition, bearing about the same relation to the year's work in ornithology that horse racing does to plowing. Plowing is doubtless to be commended both in man and beast, nevertheless the evolution of the horse is supposed to owe more to the incentive of the track than to the ancient furrow. And, anyhow, bird horizoning as an occasional indulgence does give zest to the ornithological pursuits whether detailed or general.

The value of such a magazine as *Bird-Lore* in bringing new talent to the front is clearly shown in an article describing "A Pet Road-runner," by George Miksch Sutton, a lad of 15. Here is a clever, promising piece of work and we confidently expect to see "Mas-

ter" Sutton take rank as "Mr." among the trained reporters of bird life.

The bird biography for this issue is by Witmer Stone and is concerned with the Catbird. Mr. Stone does his four page stunt conscientiously and hits off the character of the bird with scientific accuracy as well as verbal distinction. The economic homily at the end of his treatment is pleasantly sugared and his concluding paragraph of appreciation leaves us with hearts thoroughly warmed towards his hero.

Stone knows his Catbird. We wish we could say as much for the artist who paints him. Bruce Horsfall's plate of the "Catbird" is just another colored representation of two bird-like objects—nothing more. They are not "Catbirds." Paint them brown and they might pass for languid wrens. Paint them green and they would do for Warblers badly stuffed. Candidly now—and however regretfully—one wonders why Horsfall persists in trying to paint birds.—W. L. D.

## MINUTES OF COOPER CLUB MEETINGS

### SOUTHERN DIVISION

OCTOBER.—The regular monthly meeting of the Southern Division was held at the Museum of History, Science and Art, Thursday evening, October 30, with President Law in the chair and the following members present: Messrs. Chambers, Daggett, Grey, Howell, Judson, Law, Miller, Morcom, Rich, Snyder, Swarth, Van Rossem, Willett, Wood, and Wyman.

The minutes of the last meeting were read and approved, followed by the reading of the Northern Division minutes for October. The following were elected to membership in the Club: W. C. Bradbury, Denver, Colorado; J. W. Eggleston, Los Angeles; C. B. Lastreto, San Francisco; H. A. Edwards, Los Angeles. New names submitted were: Allan J. Stover, Corvallis, Oregon, proposed by Geo. F. Sykes; E. F. Pope, Colonesneil, Texas, proposed by H. W. Carriger; Amelia Sanborn Allen, Berkeley, proposed by J. Grinnell.

At the request of Mrs. E. H. Husher announcement was made that the Mozart Theatre, 730 S. Grand Ave., Los Angeles, had agreed, by an arrangement with the Audubon Society, to exhibit moving pictures of birds during the last week of each month.

The action of the Northern Division in regard to the proposed conservation congress to be held in San Francisco in 1915 was ratified, and the president and secretary of the Southern Division were authorized to sign the letter which had been drawn up by the Northern Division's committee for transmittal to various institutions and individuals.

Business disposed of, Mr. Willett entertained the Club with some of the experiences of his past summer's work in southeastern Alaska. He exhibited skins of the Dixon Rock Ptarmigan and the Alexander Willow Ptarmigan, adults and young in summer plumage, and also a series of photos taken during the summer.

Mr. Wood told of a disastrous mortality to which he found nestling birds subject in the late summer in the vicinity of Prescott, Arizona. The blow-fly of the region was found laying its eggs on the newly-hatched young, the resulting larvae boring under the skin and there feeding on the living flesh. Mockingbirds were especially studied, though other species also were observed thus afflicted, and it seemed to be a common and widespread source of suffering to the late hatched broods.

Mr. Howell spoke briefly of his season's collecting in southeastern Arizona. Adjourned.—H. S. SWARTH, *Secretary*.

### NORTHERN DIVISION

AUGUST.—A meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, Cal., on Saturday evening, August 9, 1913. Vice-president H. C. Bryant presided with the following members present: Messrs. Boyce, Clarke, Cooper, Emerson, A. K. Fisher, W. K. Fisher, J. Grinnell, and Storer. Mesdames Allen and Cooper and Messrs. Belt, Parker, and Martens were present as visitors.

Dr. A. K. Fisher as speaker of the evening told of some of the work of the Biological Survey along the lines of economic mammalogy and ornithology. He first told of the work being done toward checking the increase of harmful rodents and of the results obtained in that work. Of particular interest to the members of the Club were his remarks on the work which is now being done in examining the stomachs of various species of birds. From these examinations the Survey has among other things determined the commoner food plants of the game birds and a plan has been formulated to establish farms for the propagation of these food plants so that the seed may be distributed to the various parts of the country. By this and other methods it is hoped that some of the now transient species may be induced to breed in local areas.

No business was transacted at the meeting. Adjourned.—TRACY I. STORER, *Secretary*.

SEPTEMBER.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held in Room 101, East Hall, University of California, Berkeley, on

September 23, 1913, at 8 p. m., with President Carriger in the chair and the following members present: Mrs. Burnham, Messrs. Bryant, Burnham, Camp, Carriger, Heinemann, J. Mailliard, Pemberton, Ray, Shelton, Storer, and W. P. Taylor. The meeting was open to the public and about one hundred visitors were present.

Mr. Oluf J. Heinemann spoke on "Bird Photography" and illustrated his remarks with numerous lantern slides. He described the methods used in photographing birds with fixed focus, view, and reflecting cameras. The various accessories useful in various situations were described and their uses explained.

Mr. Heinemann then showed a series of lantern slides made by himself and others of local birds. Among the pictures were those of the Grey-crowned Leucosticte and the California Pine Grosbeak which have appeared recently in *THE CONDOR*. A very good series of slides made by Mr. Heinemann on a recent trip to the Farallon Islands concluded the exhibition. The several species of cormorants, the Western Gulls and the California Murres were well represented in these views.

After the lecture the business of the meeting was considered. The minutes of the August meeting were read and approved and the Southern Division minutes for August were read.

Mrs. A. S. Allen was elected to membership. The names of Edwin S. Parker, 1737 Euclid Ave., Berkeley, Cal., proposed by J. Grinnell, and P. C. Dutton, 26 Litchfield Road, Stone Staffs, England, proposed by H. W. Carriger, were read.

Following a suggestion from H. S. Swarth, secretary of the Southern Division, it was decided to enter the names of new members only once in the minutes of each division and not twice as heretofore.

Mr. A. L. Cowell, Field Secretary for the California Bureau of Conventions and Societies, of the Panama Pacific International Exposition, was present and spoke to the Club on the matter of having as many as possible of the ornithological societies of the United States meet in San Francisco in 1915 during the exposition. The members expressed a hearty sympathy in the matter. Mr. Cowell also discussed the possibility of an international conservation congress being held at the time of the fair and read several letters showing the world wide interest in the idea. Mr. W. P. Taylor and others discussed the matter. It was decided to have the President appoint a committee of three members to consider the matter and report at the October meeting. Adjourned.—TRACY I. STORER, *Secretary*.

OCTOBER—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held in Room 101, East Hall, University of California, Berkeley, California, on Thursday evening, October 23, 1913, at 8 p. m. President Carriger was in the chair with the following members present: Mesdames Allen and Grinnell, the Misses Atsatt and Wythe, and the Messrs. Bade, Bryant, Clarke, Dawson, Grinnell, Moran, Silliman, Storer, Trenor, Weed and Willett. Over twenty-five visitors were present. The program of the evening was first presented. Mr. W. Leon Dawson gave an illustrated account of some of the more interesting species of birds that he has encountered in his fieldwork in the interests of his "Birds of California."

The business of the meeting was then taken up. The minutes of the September meeting were read and approved and the minutes of the Southern Division for September were read. The names read at the last meeting were elected to membership. The following new applications were read: Miss Louise Le Bris, 2569 Clay St., San Francisco, proposed by J. Grinnell; Miss Olive Swezy, 533 Durant Ave., Berkeley, proposed by Tracy I. Storer; and Chas. H. Culp, Pacific Grove, proposed by O. P. Silliman. In addition the names presented at the Southern Division were read.

A communication from Mr. W. Leon Dawson stating the progress of the work on the "Birds of California" and making certain requests for aid and cooperation from the Club was read. The aid is requested on the following points: (1) knowledge of the little-known species accredited to the State; (2) data as to the migrations of the various species in the State; (3) appointment of a committee or individual to visit the technical portions of the work. Mr. Dawson commented briefly on the contents of the letter. It was decided to use the columns of "THE CONDOR" to secure information regarding the little known species and regarding migrations. A motion was carried authorizing the President and Secretary of the Northern Division to act with the corresponding officers of the Southern Division as a committee in selecting one member from the Club at large to confer with Mr. Dawson.

The Committee consisting of W. P. Taylor, H. C. Bryant and Joseph Mailliard, appointed in accordance with a motion passed at the September meeting to look into the matter of a conservation congress in San Francisco in 1915, rendered its report, which was accepted.

There being no further business the meeting adjourned.—TRACY I. STORER, *Secretary*.

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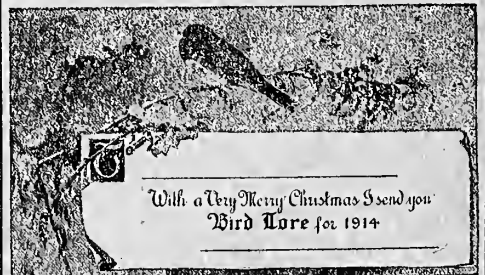
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By WILLIAM LEON DAWSON, A. M.

Author of "The Birds of Ohio" and "The Birds of Washington"

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INATTENTIVE—White-faced Glossy Ibises at Laguna Blanca

*From a Photograph, Copyright 1913  
by W. L. Dawson*



# THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XVI

January-February, 1914

Number 1

## DIRECT APPROACH AS A METHOD IN BIRD PHOTOGRAPHY

By WILLIAM LEON DAWSON

WITH EIGHT PHOTOS BY THE AUTHOR

IT IS USUALLY assumed that a bird-photographer works from a blind. The customary compliment paid to the writer when his photographs are shown is upon his *patience*. Never was a compliment wider of the mark. I am not a patient man. I am as little patient as a mountain torrent—Oh, a few “darkling pools” and placid stretches, to be sure, but for the most part dashing, foaming, fretting, plunging on to the sea. And by the same token it has always seemed to me that bird photography from a blind bears about the same relation to bird photography in the open that jugging for catfish does to fly-fishing. Pound for pound the jugger probably has the advantage, and we concede that the quality of his catch is above reproach; but the fly-caster, whether he lands a string of sparkling beauties or not, has always a glorious good time, and he knows in his heart that the tamer methods are not for him.

Of course it is a matter of psychology, the difference between the waiting game and the aggressive, the store-keeper and the drummer. Being, therefore, a bit of a drummer himself, the writer will confess at once that he never took a dozen photographs from a blind in his life; and that when he wants portraits of birds he does precisely what he does when he wants subscribers to “The Birds of California”; viz., goes after them.

But there is the psychology again; you can’t “rush” birds any more than you can humans. Not as often, in fact. There is, often, in humans a fund of good nature which will bear with sudden approach, and occasionally a fund of accumulated interest (in your subject, whatever it may be) that justifies quick action. But save in those rare cases where curiosity enters in, your claim-in-advance upon the forbearance or indulgent attention of a bird is absolutely nil. His approachability is measured only by his inertia, and that, in a creature so mobile, is very small in-

deed. Hence, artifice, dissimulation, use of cover, and above all, inconspicuousness, are essential elements of address.

Now and then, by virtue of previous knowledge of a bird's whereabouts, and good cover, one can manage to confront his subject suddenly, and swing on it in the moment of startled surprise preceding flight. But such opportunities are as rare as they are gratifying. Moreover, the difficulty of getting the focus even with a reflecting camera in that horribly brief instant of suspense makes this method a form of gambling.

The ordinary way is to mark down your bird, make use of cover as far as you can, merely to save time, and then when it fails try direct approach. The es-



Fig. 2. A PASADENA THRASHER AT LOS COLIBRIS

sential elements here are inconspicuousness of dress, avoidance of direct gaze, and extreme slowness of movement. A due consideration of these three essentials will sometimes yield amazing and gratifying results. These three things are, of course, three subtractions of the ordinary characteristics of man. Deliberateness of movement is of the utmost importance. At critical junctures a movement almost as slow as the hands of a clock will repay the effort (for effort it certainly is, ten times more laborious and sweat-producing than ordinary motion). Even when a bird's suspicion has been aroused, it may be diverted or allayed by discreet restraint. None of the bird's enemies, save the cat, moves in this fashion. The pace of the tortoise does not fit into the bird's category of dangers, and hence

is dismissed. Moreover, a bird easily suffers a fatigue of attention. It suspects and scrutinizes, and because no crisis arises, it forgets in the very act of looking. A sand flea diverts its attention and it stops to pick it up and casts about for another one. Or it tests you repeatedly by a perking of the head, or by a threatened

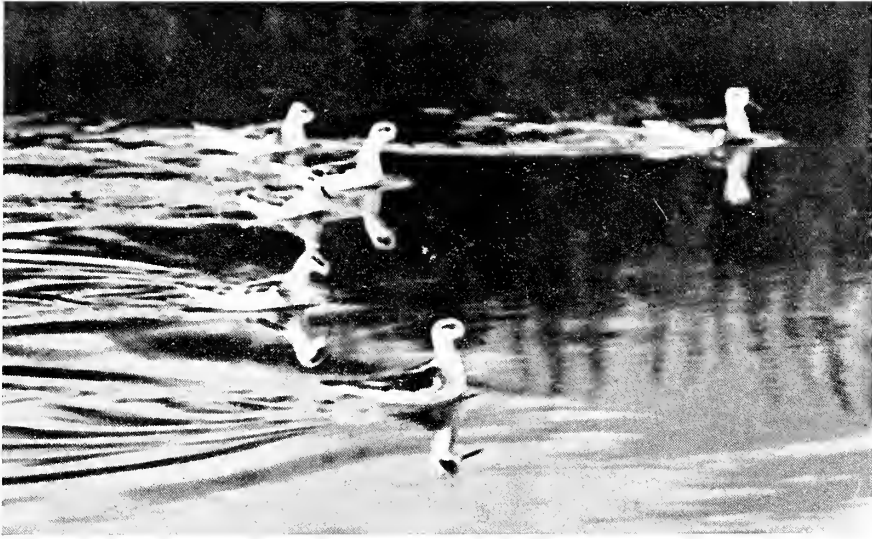


Fig. 3. THE RACE: NORTHERN PHALAROPES ON THE ESTERO, SANTA BARBARA  
From a photograph, copyright, 1913, by W. L. Dawson

uplifting of the wing. If there is no reciprocal motion on your part, no answering gleam of intelligence, the bird's suspicions are allayed, and it resumes its feeding or its siesta.

It is usually very necessary to avert the gaze. A bird which will suffer your mere presence in unconcern at twenty feet, might flee upon the instant if it caught



Fig. 4. SANDERLINGS AT SANDYLANDS

the glint of your eye. However innocent your intention, that spark explodes a train of sad recollections. You belong to the gun-carrying species. *Homo sanguineus* is your specific name in bird-Latin. Whether sub-species *amabilis* or no the bird will determine at safer range. The reflecting camera enables one to avoid this

difficulty. I habitually advance with downcast eyes, thus presenting a bowl of brown khaki instead of telltale gleams; or, if I require to re-locate my birds, steal a glance through the camera.

Color harmony in dress is to be cultivated solely insofar as it lends to inconspicuousness. The slightest display of white or any bright color is to be avoided, not only because it draws attention at the outset, but because it emphasizes motion. You may move a brown sleeve slowly through the air without provoking flight, where the slightest oscillation of a white cuff would send your quarry scattering.

In approaching shore-birds, especially, it is desirable to disguise the man-like qualities by altered posture. Ground-feeding birds hold any object in fear in direct ratio to its elevation, or one might almost say to the square of its elevation. A man on hands and knees is not half so terrible as one standing, while a prone figure, although just as surely seen, scarce seems to threaten at all.



Fig. 5. LONG-BILLED DOWITCHERS AND WESTERN WILLET AT SANDYLANDS;  
APPROACHED WITHOUT COVER

The suppression of noise is also important, though not paramount. Save in the case of unusual sounds, it is not the noise in itself which is fright-provoking, but its connection with a suspected object. In case of camera noises it is necessary to conduct a rapid course of education. The first roar of a focal-plane shutter will startle any bird, but if it is delivered by a motionless person at a distance, and no harm follows, the birds quickly accept it as part of the established order of things, and will submit to it, thereafter, at any range, without question. In direct approach, therefore, it is well to accustom the birds to the sound of your shutter at a distance, so that it may no longer complicate your situation. In this way one can take repeated shots at close quarters, where, if the noise had been held in reserve, only one would have been possible.

As a concrete and rather extreme example of the success of these methods, let me instance the White-faced Glossy Ibises herein portrayed. On the fourth day of September last, I sighted these Ibises as they settled in the edge of the

water at Laguna Blanca, a small, semi-artificial lakelet of some sixty acres, near Santa Barbara. In endeavoring to stalk them, the birds became so thoroughly frightened that they were on the point of quitting the neighborhood, and were



Fig. 6. THE IBISES: THE FIRST SHOT AT 150 FEET



Fig. 7. TWO JACKERS: WHITE-FACED GLOSSY IBISES AT LAGUNA BLANCA; TAKEN AT A RANGE OF ABOUT 50 FEET

only induced to reconsider by my own ostentatious withdrawal in the automobile. Noting from a distance of half a mile their gradual return and final precipitation, I turned back and in a circle of the boulevard surrounding the lake discovered

their whereabouts in a perfectly open place some forty feet from shore and 150 from the road. Passing as though unheeding, I sought cover, arranged the camera, made a trial focus, and set out to return. When exactly opposite, I brought the machine to a quick stop, threw off the motor and swung on the birds. At the sound of the shutter they leaped clear of the water in their astonishment, and although they fell back again, regarded me with ugly suspicion. Again I snapped and again the birds leaped two feet in air. With this by way of inauspicious beginning, and without a shred of cover, I advanced directly and *very slowly*, snapping every ten feet or so, until I stood, with plates exhausted, at the water's edge.

Returning an hour later with a fresh relay of plates I repeated the tactics of cautious advance, and took up the active work of photographing at the point where



Fig. 8. WITH WINGS UPLIFTED: WHITE-FACED GLOSSY IBISES AT LAGUNA BLANCA;  
TAKEN AT A RANGE OF 25 FEET

From a photograph, copyright, 1913, by W. L. Dawson

I had left off. Not content with this, I waded out toward the birds, taking care not to make a sound in withdrawing the feet from the deep mud, until I had the birds at twenty-five feet, practically indifferent to my presence. Here I blazed away to heart's content. That the birds were nowise constrained by my presence is evidenced by the postures of repose, of stretching, yawning, or taking of baths, and the search for food, all faithfully recorded.

Truth to tell, I did overstep the limits of the birds' patience at last by attempting another advance, and just as my last footfall was sinking at the predetermined distance of fifteen feet, the Ibises rose in high dudgeon, circled to a height of half a mile, then moved in a southeasterly direction till lost from sight. But I make no complaint; here was heavenly sport while it lasted.

## NOTES ON THE DERBY FLYCATCHER

By ADRIAAN VAN ROSSEM

DURING the six months between February 16 and August 1, 1912, while collecting in the little republic of Salvador on the west coast of Central America, it was my fortune to make a more than casual acquaintance with the Derby Flycatcher (*Pitangus sulphuratus derbianus*). Though extensive notes were taken on the birds themselves there are many points in regard to incubation, care of the young, etc., which, in the pursuit of other equally interesting species and frequent change of collecting ground, were passed over.

Aside from the superabundant and ever-present Black Vulture (*Catharista atrata*) or "Sope" (which name, by the way, is occasionally given to the priests because of the merely external resemblance), no bird is better known by the native population, or more quickly noticed by even the most disinterested visitor than the strikingly colored and noisy "Chio", not so much because of the abundance of the latter birds, but because with the exception of a few Nicaraguan Boat-tailed Grackles (*Megaquiscalus nicaraguensis* subsp.?) or stray Giraud Flycatchers (*Myiozetetes texensis texensis*) they are practically the only small bird to be found inside the larger towns. Though noted in greater or lesser numbers in every locality visited, from the top of Volcan de San Salvador to the mangrove swamps along the coast, the center of their abundance is the highly cultivated district surrounding the two largest cities, San Salvador and Santa Ana, which are situated at about two thousand feet above sea level. Toward the two extremes of altitude (sea level and 7000 feet) the birds become scarcer; decidedly so in the mountains and to a much less degree at the coast. At Acajutla, the port of entry, they were quite common. The intermediate zone is, as has been mentioned above, under intense cultivation, but at the same time is criss-crossed and cut by innumerable steep-banked gullies varying in depth from a few feet to over a hundred, most of the larger ones containing water, and all, of course, hung with a tangle of tropical growth. Some of the narrower of these gullies are completely arched by trees growing on the rims. These ravines together with the tiny "fincas" or farms placed on the ridges (sometimes half a mile wide) between, make from a Derby standpoint an ideal breeding locality, as proven by the presence of numerous nesting pairs. At a lower elevation where the more open country is given over to cattle pastures they are also very common but do not seem to nest, as a general thing, so close to the ranch houses as in densely populated sections. These birds were found in considerable numbers, too, around Lakes Ilopango and Channico.

At the time of my arrival Derby Flycatchers were already paired off, but it was not until the first week in March that nest-building in the vicinity of San Salvador at least had commenced. The first nest which came under observation was about half completed on the 15th and was collected with four fresh eggs on the 28th. In this instance, then, nearly a month must have been required to build the nest and lay the full complement of eggs. Perhaps this time is unusually long, but as all that were subsequently found were already occupied at the time of discovery there was no means of determining this point.

A wide variety of nesting sites is chosen. Near San Salvador where cocoanut palms are abundant these are generally selected, the nest resting on one or two of the lower fronds at their juncture with the main stem. Ordinarily a rather short palm is used, an average height being, say, twenty feet. The lowest was a scant six; the highest a good fifty. In the lower country a small mesquite-

like tree grows commonly close to water and is used by several other birds in common with the Derbys; among them the Hooded Cactus Wren (*Helcodytes capistratus capistratus*), the Sclater and Lichtenstein Orioles (*Icterus sclateri* and *Icterus gularis gularis*), Giraud Flycatcher, and Gray Becard (*Platypsaris aglaiae latirostris*). These trees almost without exception were swarming with fire ants which lived in the greatly enlarged and swollen thorns and whose sting is very sharp and irritating. They seemed to cause the birds no inconvenience, even though the tearing apart of a nest would sometimes show the insects present in considerable numbers. Wasps' nests were encountered all too frequently for comfort and the above mentioned species sometimes built near them, undoubtedly for the added protection. One Derby's nest was built over and partially supported by a wasps' nest as big as a foot-ball. That of a Hooded Cactus Wren was also observed in a like situation. It may be noted here that the country Derbys seem to be much more peaceably inclined than are their city kin, often nesting in close association with one or more pairs of other species. In one case four nests were found in one small tree, a Derby's, a Giraud Flycatcher's, a Lesson's and a Lichtenstein's Oriole. Three other nests may be recorded as being in rather unusual locations; one in a dead tree sticking out of a mud flat about two hundred yards from shore at Lake Ilopango, another in a tangle of vines hanging over a bank, and the third thirty feet up in a great creeper-hung tree and almost hidden in a cluster of purple orchids.

Remarkable similarity in construction, material and shape of nests was noticeable. The body, including the roof, made up of fine dead grass stems with the addition of much soft stuff, such as feathers, plant down and small rags (when available), was rather loosely put together. The cup (or more properly saucer, in this case) consisted of slightly coarser grass stems well packed and smoothed down and placed well toward the back of the nest; entrance on the side and pointing slightly downward, thus making a more effective water-shed. Measurements: outside, eighteen inches long by ten wide by eight high; inside, (nest cavity) seven inches long by five wide by five high, the saucer taking up the whole floor. These measurements were taken from the first nest collected and may be a little larger than the average. By the time the young are ready to leave, the formerly purse-shaped nest has been flattened out and blackened by the tropical rains and sun, and the young birds have so enlarged the entrance that the entire cavity can be plainly seen.

Fresh eggs were found from March 28 to the first of June, so two broods at least are raised each year. In every instance a new nest was built for the reception of the second set, whether the birds succeeded in raising a first brood or not; but in neither case was material ever taken from the first nest to be used in the second. Number of eggs ran from four usually, three occasionally, to two once.

In the city of San Salvador are a great many birds which are without doubt non-breeders (as only two nests were found in the city proper), even though they are mostly in pairs. These individuals, having nothing better to do, contrive to keep things lively by scrapping not only with each other but with anything that happens to attract their attention, such as a stray house-cat or a wandering hawk.

A favorite lookout is a tall flag pole or similar point of vantage, and this is taken possession of to the exclusion of all other birds, most especially of their own kind; in fact, the advent of another pair onto their preserve is the signal for a battle royal which generally ends as it should—in favor of the home team. From dawn till an hour or so after sunrise, and in the cool of the late afternoon

and early evening, they are most active and noisy. Their call notes can then be heard in every quarter of the city and the birds themselves are most in evidence, snatching flies over heaps of refuse in the gutters, hawking about the plazas, or "kingbirding" an unlucky Black Vulture. Activity, though, is by no means confined to these periods. Birds may be found at almost any hour of the day. On two occasions one (probably the same individual) was seen about an arc-light long after dark. It may have been attracted by the light, but in my own mind there is no doubt that the insects which buzzed around the globe in swarms were the real reason for the bird's presence, as it appeared in no way confused and kept well outside the most brilliant circle of illumination. Owing to this fact, and also because the light was quite high up, I could not actually see the bird catch anything, though its frequent short and erratic flights would indicate that this was the object. Its perch seemed to be directly above the shade. The first time was on March 29 and the second, April 1. When I returned from the coast the last of July the bird was nowhere to be seen, though I went twice to look for it. W. B. Judson has noticed the Black Phoebe doing the same thing (see CONDOR, III, 1901, page 186), and it would not be surprising to find with a little more observation that this trait has become common among others of the larger Tyrannidæ. More than once, too, the evening "concierto" was broken into by an outburst of "Chio" yells, provoked probably by some hunting Barn Owl (*Aluco*, sp. ?), several of which used the near-by cathedral tower as a day-light retreat.

As is the case with many other common and well-known varieties, the native name of "Chio" is derived from the Derby's call note, which may best be written che-oh, or chee-o, generally given rather slowly, but under stress of excitement or anger losing entirely its deliberate quality and becoming shrill and hurried. At such times, too, and particularly at the nest where the parents become almost frantic, these notes are interspersed and plentifully larded with extremely Kingbird-like expletives.

One other species may at first sight be mistaken for *derbianus*, namely, the Mexican Boat-billed Flycatcher (*Megarynchus pitangua mexicanus*), being almost identical in size and markings, and with a very similar call note. However, the absence of the light rufous wing and tail markings so conspicuous in the Derby, with shorter tail and heavier bill (which last is distinguishable at quite a distance), serve to differentiate the two. This resemblance is of course merely superficial, and except for the points mentioned and a "Tyrannine" disposition they have nothing in common. As would be expected, no local distinction is made between them, both being known as "Chio", and even the Giraud Flycatcher is universally referred to as "Chia", or the female.

Too few specimens were prepared to allow of any definite conclusions regarding food habits except that insects form the entire bill of fare. Stomachs examined contained small beetles, wasps and small grasshoppers, of relative abundance in the order named, as well as a great assortment of flying insects which I was not expert enough to identify. However, the diet must vary a good deal with the locality as well as with the season.

## SOME NOTES ON THE NESTING OF THE SHARP-SHINNED HAWK

By HENRY J. RUST

WITH EIGHT PHOTOS BY THE AUTHOR

MY OPPORTUNITY for observing the nesting of the Sharp-shinned Hawk (*Accipiter velox*) began on the 15th of June, 1913. I was passing by a dense stand of Douglas fir (*Pseudotsuga taxifolia*) on the south slope of Tubb's hill\*, about half way between the summit and the base, when an unusual disturbance was heard among the members of a small flock of mountain chickadees. I surmised that a hawk was causing the trouble and on drawing closer a male Sharp-shinned Hawk flew out of the thicket and lit on a fir tree nearby.

My presence was noted immediately, perhaps before the bird left the thicket, and brought forth a continuous "cha, cha, cha, cha". I realized at once that I was considered an intruder and had been warned to leave; however, I could not resist the temptation to look for a nesting site, and on entering the thicket I soon discovered the nest, and the secret was out. A light rap on the trunk of the tree and the mother bird left the nest; with a slight motion of the wings she reached a large fir tree about 25 yards distant and perched on a limb where the nest could be observed.

The nest was situated well up in a small-sized Douglas fir. Owing to the density of the stand the lower limbs were very small and brittle. Laying aside hat and coat I made ready for a visit to the home. After no little effort I reached the brim of the nest and felt well repaid by even one gaze at the five beautiful eggs lying in the slight hollow of the nest.

The nest was composed entirely of small dry fir twigs and was situated 34 feet from the ground, on the south side of the tree, and measured 32 inches in length, 17 inches in width, and 8 inches in greatest depth. It was saddled on three limbs averaging three-fourths of an inch in diameter, two of them 8 inches apart at the outer edge of the nest and the other space 16 inches. The nest was a little thicker at the trunk of the tree. This, with the upward angle of the three limbs, gave a fairly good bearing for holding the nest secure during the swaying of the trees as a result of hard wind and rain storms so common in this locality. The diameter of the tree at the nest was  $5\frac{1}{4}$  inches, and at the base, breast high, 9 inches. As the tree began to reach the light towards its top the limbs were more numerous and the foliage much denser, so that a few feet above the nest they formed a heavy shade.

The eggs were lying in a slight depression in about the center of the nest. There was no lining of any kind, except one wing feather of an old bird near the eggs, which had probably been lost during nest-building. The ground-color of the eggs was a light greenish, with heavy irregular markings of rich brown. Size of eggs: 1.50x1.37, 1.50x1.36, 1.50x1.31, 1.48x1.32, 1.48x1.25.

The mother bird showed her disapproval of my presence by a constant "cha, cha, cha," much shriller than the note of the male, and by darting back and forth, striking close enough to raise my hair with the rush of her wings. The male bird kept up similar but less shrill cries, but did not strike at me though he kept passing back and forth near the nest. In hopes of taking a series of photographs of the nest, eggs and young, I left the nesting site with the intention of returning

\* A small hill bordering on the shore of Lake Coeur d'Alene and forming part of the township of Coeur d'Alene, Idaho.

as soon as I could with a camera outfit, as the location was just about an hour's trip from my home.

The nesting site was again reached late in the afternoon of the 18th. The male bird was not in sight; a slight rap on the tree and the female left the nest as upon my first visit and perched on a limb of a large fir which proved to be her regular landing and firing station during all my visits. Owing to numerous limbs it was impossible to haul up anything from the ground with a rope, so I placed my camera outfit in a pack-sack on my back and ascending to the nest fastened the sack to adjacent limbs.

In contemplating a photograph of the nest in its natural situation I began to realize that I had no small task on hand. The limbs below the nest were too low to afford a working position, and just above the nest the limbs were too close,



Fig. 9. NESTING LOCALITY OF SHARP-SHINNED HAWK NEAR COEUR D' ALENE, IDAHO;  
TOP OF NEST TREE AT CROSS (X); TALL TREE NEAR CENTER, REGULAR LOOKOUT  
STATION FOR FEMALE HAWK

so much so as to interfere greatly with the camera adjustments. As it was getting late and the light was growing poor I had to get busy. I lashed a small tripod to the trunk of the tree in a horizontal position and with the aid of a tilting attachment was able to get a vertical adjustment showing the eggs and a portion of the nest. A strong wind came up while I was focusing and I was in constant fear of dropping some part of the outfit on to the eggs; and at the rate the tree was swaying I was not sure of my own safety.

The light had grown so weak that a time exposure was necessary, and it began to look as if I would not have much success. As I had worked so hard already I thought I would take a chance, and so exposed three plates. I had to descend below the nest at each exposure to lessen the weight at the top of the

tree. All I had expected was a blur, but I was well pleased with the results upon development.

The mother bird grew very anxious about her eggs and kept my head cool with the rush of her wings. I left the tripod lashed to the tree a short distance above the nest, but it was some time before she would finally settle down on the eggs.

Not knowing when incubation started I realized it would take numerous trips to keep watch of the eggs. The nest was visited again on June 23. The male bird was away, and I was beginning to think something had happened to



Fig. 10. NEST OF SHARP-SHINNED HAWK SITUATED 34 FEET FROM GROUND IN DOUGLAS FIR

him. The female was flushed as before, but there had been no change in the eggs and there were no signs of food at the nest. My next visit was on the 29th. This time the male bird was near the nesting tree and greeted me with the usual scolding. The female left the nest as soon as I commenced climbing, and returned to the eggs as soon as I returned to the ground. No change was noted in the eggs.

My next visit was on the morning of July 2. While approaching the nesting site I observed the male bird returning with a small bird in his claws and followed by a number of indignant swallows. The hawk seemed to resent the attacks of

the small birds, but not being in a position to defend himself lost no time in reaching the cover of the trees. On reaching the nest I found four of the eggs pipped, one with the opening large enough to reveal a small portion of the young bird in motion. Faint peeps were heard.

I returned to the nest at 4 P. M. and found that one young bird had hatched, and one other egg had a small opening through its side. The young bird was covered with fine white down over the entire body, permitting the color of the flesh to show through, giving a slight pink appearance. The eyes were open and very dark in color. The plucked body of a small bird rested on the nest. The



Fig. 11. EGGS OF SHARP-SHINNED HAWK AS RESTING NATURALLY IN THE NEST;  
PHOTOGRAPH TAKEN JUNE 18, 1913

young hawk picked at the remains of the bird when it was held close to it, but to no effect.

On July 3. 10:30 A. M., the male hawk began his shrill cries long before I reached the thicket. The female was very ferocious, keeping up a constant "cha, cha, cha", and striking at me again and again from the time I began to climb to the nest. On reaching the nest I found three more young hatched and the fifth egg pipped on one side. The first young hawk was able to raise its head and seemed quite alert. The other three were lying flat. No signs of food. I had brought my camera along this time and prepared for a negative of the four young.

While adjusting the camera it began to rain and the air became quite cool, causing the little birds to huddle all together. I exposed four plates and started for home. The mother bird returned to the nest before I had reached the ground.

The nest was visited again July 7 at 5:30 p. m. Drawing near the thicket I heard one hawk calling, which appeared to be the female as she proved to be not on the nest. As I approached the tree both birds uttered their cries and began striking at me long before I reached the nest.

Ascending to the nest I found five young birds showing slight differences in size. The last bird may have hatched on the 4th. They were lying close together



Fig. 12. FOUR YOUNG SHARP-SHINNED HAWKS IN THEIR NEST; THE ONE RESTING AGAINST THE EGG IS TWO DAYS OLD, THE OTHERS ONE DAY OLD; PHOTOGRAPHED JULY 3

with their heads thrown back, and seemed to have increased one-third in size since my last visit. There were no signs of food of any kind, only some blood clots on the twigs near the nest cavity and a few small feathers on the outer edge of the nest. The young birds pecked at my finger but did not seem very hungry. The old birds were very ferocious, more so than before. The male struck one hard rap between my shoulders while I was examining the young, and the female kept striking so close to my head as to make it very uncomfortable. After descending to the ground I hid near a small fir tree to watch the old birds. The female flew

to the nest and kept up a constant call; the male followed close to where I was standing and swooped at my head; shortly afterwards the female made a swoop direct from the nest and just grazed my head. I moved out of the thicket and both birds followed, perching eight or ten feet from me, uttering their shrill cries, and darting at my head at short intervals. I finally started back down hill and stopping fifty yards or more from the thicket looked up just in time to see the male hawk coming straight for me. I waved my hat and he circled and made for a tall tree near the nest, seeming satisfied that he had finally driven me away.

July 10 I visited the nest late in the afternoon. It had been raining all day and had just cleared up for a short respite. On reaching the nest I found the young ones had gained considerably in size; the sheathed feathers at the wing tips were about one-half inch long; their general appearance in color varied from pinkish



Fig. 13. NEAR VIEW OF TWO OF THE YOUNG SHARP-SHINNED HAWKS; AGES 9 AND 10 DAYS; PHOTOGRAPHED JULY 12

white to a dull yellow; the birds were able to hold their heads high and showed signs of resentment when I stroked them. There were no signs of food, and the old birds were not as ferocious as usual.

July 12 I reached the nesting ground about 10 A. M. I stopped about 150 yards from the thicket and was looking for signs of the old birds when I noticed the male hawk coming my way straight for my head. He sailed within a few feet of me, circled, and lit in a tall tree nearby. Reaching the nest tree I arranged the camera outfit in a sack and ascended to the nest. From the time I started climbing until I had made three exposures of the young in the nest, the female hawk struck at me thirty-nine times. Her wings often struck against my shoulders. The male struck three times, one good rap on my back with his wings. I had to keep my head as close to the tree trunk as possible to avoid claws.

Being able to take negatives from a vertical position only, I put three of the young hawks in a basket strapped on my back, descended to the ground with them, placed them on a platform of twigs on a large flat rock near the edge of the thicket, and made several exposures of them nearly life-size. The mother bird uttered a few low cries when she missed the young from the nest, but made no further fuss.

After returning the young to the nest I retired about twenty-five yards up the hillside where I could observe the nest with field glasses. The male hawk had been away for a short time and when he returned the female flew to the opposite edge of the thicket to meet him, uttering low cries, and soon returned to the nest. She seemed aware of my presence and kept up a constant scolding for some time. Presently I noticed her begin to tear strips of meat from some small mammal or



Fig. 14. FOUR OF THE YOUNG SHARP-SHINNED HAWKS AS PHOTOGRAPHED JULY 19 ON A PLATFORM OF TWIGS NEAR THE NESTING TREE; NOTE FEATHER-DEVELOPMENT HERE SHOWN, AT AGES OF 15, 16 AND 17 DAYS

bird she was holding down with one foot, and feed them to the young.

I ascended the tree as quickly as I could to determine if possible the nature of the food, and on reaching the nest found the leg of a young bird, all that was left. I offered it to one of the young hawks and it was gulped down whole, claws and all. I descended again and remained hidden for a long time, but not being able to observe any further feeding of the young I returned home.

July 16 I visited the nest late in the afternoon. Peering over the edge I thought one of the young hawks dead, but it happened that the three larger birds were reposing on the bodies of the two smaller ones. The largest hawk, the first one hatched, resented any handling by squaring back with wings outstretched and striking quite a blow with its bill at my hand.



Fig. 15. TWO OF THE YOUNG SHARP-SHINNED HAWKS AFTER THEY WERE ABLE TO FLY, AGED 23 DAYS; CAPTURED ONLY AFTER MANY HARD CLIMBS; PHOTOGRAPHED JULY 26

Wing-feather sheaths were now showing on all the birds about two inches long, with feathers broken through one-half inch; tail sheaths showed about one inch long. While there was a slight difference in size among the birds there seemed little difference in growth of feathers. The down was getting very heavy on the back and flanks, and the underparts had become nearly bare. No signs of food of any kind were to be seen around the nest. The mother bird was on guard on a limb of the large fir tree. She struck a number of times at me, once a hard rap with her claws on my shoulder.

July 19 I reached the nesting site at 10 A. M. For the first time since the young had hatched calls of the parent birds were not to be heard. I thought perhaps both were away hunting, but on my start up the tree the mother bird put in an appearance with her usual ferocity, though the male bird did not appear.

I had strapped the basket on my back and after a few minutes at the nest I placed four of the young in the basket and descended to ground. I proceeded to the previous base of operations and started to work with the camera. The birds were very restless, owing doubtless to the extreme heat and to the strange surroundings. Two of the young hawks hopped from the platform of twigs and jumped to the ground, a distance of two feet. The male bird returned while I was making negatives of the young, and both parent birds kept up a constant "cha, cha, cha". The female uttered a very plaintive cry when I took the young from the nest and several times while I was handling the young to photograph. The wing feathers of the young projected an inch from the sheaths. Feather development was almost the same on all five young. Considerable down adhered to the nest, but there were no signs of food.

July 23 I visited the nest late in the afternoon, finding the parent birds away some distance. The female returned while I was ascending to the nest. Just as I peered over the edge one of the young birds made a quick turn and made an attempt to fly away, but only sailed a few feet, struck a limb, turned a somersault, and fell to the ground right side up. I descended at once and returned "smarty" to the nest. The other young ones retreated to the outer edge of the nest and showed considerable fear. One bird nearly toppled over the edge, but the keen-eyed mother darted past and struck the young bird with her wing driving it back to the center of the nest. Great quantities of down hung to the nest twigs. No signs of food.

July 26 I reached the nesting ground at 9:30 A. M., hardly expecting to find any young in the nest. The old birds were away, but the female promptly arrived when I started to climb the tree. When I was about half-way up, the mother gave what seemed to be a warning cry, and hawks were flying in all directions. They must have all left at once. When I reached the nest it was entirely deserted. The nest cavity was about gone, the surface being nearly level and well covered with down. The breast and leg of a small bird lay on the nest.

I spied two of the young hawks on a limb about twenty feet from the ground on a nearby tree, and that being all I could locate I descended the nest tree and started up the tree harboring the young. This tree was a hard one to climb; when I reached the limb I thought I would be able to catch the birds, but they both sailed away and one missed footing on the next tree and fell to ground. I soon secured this one and placed it in the closed basket. I then started up the tree for the other bird, and gave the limb a hard shake. The second one thereupon came to the ground, but came near escaping by getting into a dense thicket. I searched a number of the trees from below, and shook all the small ones near the nest, but detected no more hawks. I ascended the nest tree again and finally located another

young bird in a nearby tree. After I had climbed three trees it finally escaped in a dense thicket and I gave up the chase. The mother bird would alight quite near while I was climbing for the young, and utter a plaintive "cheep, cheep".

I carried the two young hawks to the edge of the thicket and perching them on a dead limb made several negatives of them. I brought the two captives home with me and put them in a large cage to note further developments.

On the 30th of July I again visited the nesting site, and discovered the three remaining young hawks perched near the top of a tall dead tree about thirty yards from the nest tree busy preening their feathers. Considerable down was hanging to the limbs and occasionally a bit would float away on the breeze. I remained hidden nearby all the afternoon observing the young through glasses. The



Fig. 16. "HANDS OFF"—A CHARACTERISTIC POSE; AGED 23 DAYS; PHOTOGRAPHED JULY 26; NOTE DEVELOPMENT OF PLUMAGE

old birds were away, no doubt foraging in the interests of their hungry offspring.

Late in the afternoon I heard one of the old birds call and had just caught a glimpse of its wings when all the young uttered a faint "cheep, cheep", and flew to a tree some distance off. After a short time two of the young returned to the dead tree; one remained away some time, finally returning to the other two. I remained quite late but observed no further evidences of feeding, so returned home.

On the 1st of August the last down had disappeared from the captive birds, that being on top of the head. They seemed to stand captivity very well but remained extremely wild. I kept their cage hung well up in a tree, and fed them exclusively on raw beef, three ounces for both birds at a meal, morning and eve-

ning. They would gulp the meat down just as fast as they could, when I cut it in small bits, and were able to tear the meat into shreds when in large pieces.

On the 9th of August I returned to the nesting site with the two captives in a basket. I liberated them at the edge of the thicket and they flew up and lit near the top of a small fir tree where they behaved for a time as though quite out of place. I remained quiet and soon heard a call from a young hawk on the other side of the thicket and was surprised soon after to see the mother bird fly to the tree where the two liberated hawks were perching. I had hardly expected to find the old and young still so near the nest. I was not able to remain at the nesting site any longer, and this was the last I saw of the hawks.

From the amount of feathers scattered over the ground in the thicket I am of the opinion that young birds formed the exclusive diet of this family of Sharpshins.

## THE PEOPLE'S BREAD

A Critique of "Western Bird Guide"\*

By WILLIAM LEON DAWSON

WE HAVE LONG needed an accurate color guide and manual, of convenient pocket size, to facilitate the recognition of our birds afield. Whether or not the "Western Bird Guide" is the book we have been looking for, it is the purpose of this paper to enquire. The dimensions of this little book are admirable— $\frac{1}{2} \times 3\frac{3}{8} \times 5\frac{3}{4}$  inches—just right to slip into the pocket and take along for an all-day hike. And when it is understood that the 255 pages of this book contain 231 cuts in color, representing nearly 500 species of Western birds, together with descriptive text, and that its price ranges from \$1.25 *down*, its importance as a formative element in the instruction of our Western youth is apparent. It becomes of the first interest, therefore, to ask whether it also answers the tests of scholarship, accuracy, and substantial worth.

We are not told anything as to the authorship of this little manual, but we may assume that it was conceived and partly sketched in by Chester A. Reed, and that his recent lamented death left the task to other and less experienced hands to finish. If this be the case, the book was brilliantly conceived but indifferently executed. Fortunately, it is not incumbent upon us to apportion praise or blame to individuals as such in this connection, but only to judge of the result, that which is offered to us in the name of ornithological bread.

The late Mr. Reed was one of comparatively few American bird painters who could catch the authentic character of the birds and hit it off in happy, confident fashion. While not of the first class, his work usually ranked high, and the contributions of his brush are what give this volume such value as it has. "C. A. R." drops out on page 114, and the plates immediately following cease to have any definitive value, descending at times to the level of caricature. Shades of Kit Carson! Is that a Roadrunner? But then, "H. F. H." never saw the bird, and he is doing the best he can. The Coppery-tailed Trogon and some others remind us of the souvenir series once put out by the "Arm and Hammer" brand of soda. The Woodpeckers are better, some of them quite decent in fact. Having gotten up speed again our aspirant takes a bad header over the Swift hurdle, and rising, bruised and angry, proceeds to slaughter the Hummers and Flycatchers.

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\* Western Bird Guide | Birds of the Rockies and West to the Pacific | Illustrated by Chester A. Reed, B.S. | Harry F. Harvey | R. I. Brasher | 1913 | Doubleday, Page & Co., Garden City, N. Y. Flexible leather, \$1.25.

A single plate by "C. C. T." (we should really like to know him) is like an oasis in the desert, because it does serve to recall to mind birds with which we are familiar. "R. I. B." 's work, reached in the Sparrows, restores in a measure our drooping spirits. His birds really look like birds, even though the color printer has played him some scurvy tricks, as witness his pale pink Crossbill, page 169.

The remainder of the book, filled (from page 172 on) with unsigned sketches, although we suspect some of the work to be "R. I. B." 's still, because of the sustained excellence of its drawing, goes all to pieces in its coloring. Thus, the Green-tailed Towhee is smeared all over the back and wings with a vivid grass-green, as is also the Violet-green Swallow (poor little innocent!). The color-mixer tired of his work or else had orders to hurry up the job, and the result is a sad mess. Somebody soused the Ouzel's head in a keg of brown paint (whoever drew that bird, page 218, as also the Catbird on the opposite page, has even Horsfall beaten). The Willow Thrush, page 235, fell into the lye vat and all his feathers bleached to a sickly yellow-brown; while the Robin and the Varied Thrush and the Bluebird have beautiful *vermillion* breasts, such as even the Cardinal might envy. By the way, what became of the black band on the Varied Thrush's breast? We have told a thousand people by word of mouth that the Varied Thrush was much like a Robin, except that he had a black crescent across the breast. Could we have been mistaken? Our "guide" declares we are.

And some of the earlier plates are not above criticism from the standpoint of accuracy in coloring. The Bonaparte Gull, page 26, boasts a combination of immature wings and nuptial head-dress. The Western Gull, on page 23, differs not a whit from the Herring Gull in the plate, although it is very different in fact. The Buffleheads, page 52, are way off color; the Black Turnstone, page 91, is shades too light; and the Glossy Ibises, page 63, far too red. It is the achieved excellence of many of the plates in point of coloring which leads us to attribute the poor work to carelessness rather than inability.

Usually the descriptive matter offered is placed directly opposite the figure upon the plate to which it appertains. Occasionally, however, transpositions have arisen, changes which must cause confusion to the inexperienced student. We should know, of course, that the Brown and the White Pelicans were transposed; but the change in the Scoters, page 56, will mislead the incautious student; while the confusion among the Auklets, page 15, baffles even honest inquiry. The Quails, page 95, will deceive all but the elect.

While it is obviously impossible in a work of this size to draw birds to a uniform scale, it might be expected that those, usually only two in number, upon the same plate, would be of the same scale. Yet this principle, commonly observed, is so often disregarded that it fastens upon the plastic minds of the young a vicious misapprehension which can never be quite shaken off. Thus, the difference in the size of the lesser Loons, page 12, is grossly exaggerated; the Western Solitary Sandpiper and the Western Willet, page 33, appear as twins; while the difference in the Curlews, really slight, save as it resides in the bills, is exaggerated one-half. Wilson and Mountain Plovers should be carefully distinguished in point of size; yet he who looks upon these in the "Guide" is confused forever after. Most offensive of all is the Swift plate, wherein Vaux's is made to appear *almost* as large as its great kinsman, the Black Swift. These things are unpardonable.

In taking up the consideration of the text, we find, speedily enough, that it is incoherent and inconsistent, ungrammatical even; that it is in fact, mere wadding. If this were all, we could forget it, and only wish that the spaces had

been left blank or turned to better purpose in the enlarging of the plates. But this is not all, for the text, formless and trifling as it is, is as full of inaccuracies, guesses, and bald misstatements as an egg is of meat—or, let us say, as an ownerless dog is of fleas; whoso lies down with it shall go scratching for many a day.

Of course the space at command is very scant. All the more reason, then, why some two or three lines of information should have been held to throughout. Apart from the oological interest, which predominates but is still intermittent, we get mere scraps—now a plumage description, now a range, now a bit of life-history, but always a choice array of Eastern guesses at Western facts. The omission of a bird's range is often misleading. Thus, Willow and Rock Ptarmigan are given as though they might be of universal distribution in the West.

The omission of a sub-species might easily be pardoned, if it were consistent; but to give one and make no mention of another more important in the West is needlessly misleading. Thus, no mention is made of the Hutchins Goose or the Sandhill Crane or the Oregon Ruffed Grouse or the Red-naped Sapsucker.

While professing to be complete, even species are omitted if they chance to resemble closely certain other species. Thus, the Lesser Yellowlegs, White-winged Dove, and Yellow-billed Magpie are omitted without mention.

An amusing attempt is made in these pages to "bear" the western egg market. Thus, we are told, page 114, that Condors' eggs are "not as unobtainable as many suppose"; that Duck Hawks nest "abundantly" on the Pacific Coast; also, that the Green-winged Teal breeds abundantly in California and Oregon.

But since we have made the charge of inaccuracy, let us be specific, for this is the nub of the matter. The inaccuracies noted appear to be of two classes: those which are due to sheer carelessness, *lapsi calami* and poor proof readings, and those which betray crass ignorance of Western conditions. The former are more easily forgivable, so let a few examples suffice. *Rallus levipes* is accorded a length of 10 inches as over against 15 for California Clapper Rail, page 15; Florida Gallinules are said to lay from six to ten eggs of a creamy buff color (no spots!) page 72; Coots, page 72, have the same retiring habits as Rails. (The writer had 246 Coots fighting for a chance at his loaf of bread this very day, yet there are two species of Rails which he has never yet seen.) *Ceryle torquata* is said to be "somewhat larger than the above", that is, than the Belted Kingfisher, although the accompanying numerals proclaim it to be only 8½ inches long, as against 13 for *Ceryle alcyon*. The Anna Hummer, the largest California species, page 142, is no longer than the Calliope, our smallest, etc., etc.

But it is only when we fully realize the difficulty which must beset the writer who would descant upon species two or three thousand miles away, above all to write a "guide" for them, that our appreciation of his courage rises to the boiling point. I give a dozen examples, selected at random from hundreds, to illustrate the difficulties which must inevitably attend such an attempt. We learn from this doughty volume that large numbers of California Murre eggs are taken yearly to the San Francisco and other market places, etc. Of course this practice was discontinued many years ago by Government order. The Glaucous-winged Gull is said to breed "from British Columbia northwards", page 22. Its breeding range includes the west coast of Washington also. Bonaparte Gulls "are rarely found in the U. S. with the black hood", page 26. They are of regular occurrence in such plumage both going and coming, as far south as Santa Barbara. Farallon Cormorants breed in large numbers on the Farallones, page 39. Presumably,—only they don't. Mallards feed on molluscs and marine insects which they gen-

erally reach by tipping, etc., page 44. Not conspicuously! The Fulvous Tree-duck is found "west to the Pacific Coast in southern California", page 61. The center of its abundance, however, is in central, not southern California. The white-faced Glossy Ibis "is occasionally found in southern California", page 63. Also to the number of some thousands in central California, northern California, and Oregon. Red Phalaropes are said to retain their winter plumage until after they leave us in the spring, page 73. They may be seen in the latitude of San Francisco in highest nuptial dress during the spring migrations. The Wandering Tattler is seen "building its nest along the marshy shores and banks of streams," page 84. Pure hypothesis! The Wilson Plover is said to be abundant on the coast of southern California, page 89. There is *one* record of its occurrence, accounted accidental. The Black Oystercatcher is credited "with no attempt at nest building," page 92. Its elaborate accumulations of transported pebbles, or rock flakes, are marvels of their kind, and I have known it to construct an elaborate nest of grasses, after the fashion of the gulls. The Bob-White is "fairly abundant in parts of California," page 93. The rearing of Bob-Whites is an admitted failure throughout California owing to the prevalence of foxes. The Prairie Falcon sometimes nests in trees. "Their nests are made of sticks lined with weeds and grass," page 113. This falcon never lays talon to twig in the Pacific Coast States, and the solitary instance of tree nesting cited by Goss is supposed to have been of a pair nesting in a *cavity* of a tree. Red-breasted Sapsucker, "a Pacific Coast bird from Lower California to Oregon", page 132. Its range also includes all of Washington and much of British Columbia. The Red-headed Woodpecker, page 134, "occurs fairly common in Arizona", whereas the A. O. U. Committee properly accounts it casual there. White-throated Swifts "congregate in thousands about the tops of inaccessible cliffs", page 140. A few scores at a time are all that most of us Westerners have ever seen. Is it possible that the author has the "Republican" (now the Progressive) Swallow in mind? Western Flycatcher—we are passing by much of the alleged information about western oology, for most of it is mere piffle anyhow; but how is this for the sole characterization of the nesting of the Western Flycatcher? "The nest is placed on the lower branches near the ground"! In view of this bird's well-known penchant for niches in cliffs and cubby holes of any kind, the description is scarcely adequate. California Jay, page 156, "the most common of the Jays on the Pacific Coast of \* \* \* and Washington", whereas, in Washington it is of very limited occurrence along the north bank of the Columbia only. Large-billed Sparrows, page 178, "Their nesting habits and eggs are practically the same as those mentioned previously". This will be welcome news to most of our western oologists, who have been searching long and longingly for this to them unknown nest. Of course they *may* prove to be the same,—*quien sabe?* But the author of the "Guide" knows, for he says of the San Benito Sparrow just following, "Nesting habits are identical". Etc., etc., etc.

Perhaps the Critic will be accused of taking his task over-seriously, but he does feel that it is a serious matter. This gaudy, sloppy bauble will be the ornithological Bible of thousands. The plain people will feed upon it; and the people's bread is of infinitely greater importance than the pastry of princes. I have small time to discuss with you whether a slightly more ashen shade of "mummy brown" on the thirteenth scapular of a sparrow entitles its bearer to recognition as a subter-sub-species of *Melospiza melodia infinita*. If you say so we will let it go at that, and you may enter the ornithological Valhalla on that ticket, if you will; but when a bunch of book-making Yankees tells us that the Light-footed Rails are ten inch-

es long, and that Short-tailed Albatrosses breed on islands off the Coast of Alaska, and that the Western Savannah Sparrow is "a slightly paler form of the preceding" (said preceding being, according to the book, *Poocctes gramineus confinis*), and show us pale pink Crossbills and Jenny Wren Dippers and California Jays without any blue in their plumage, all in the name of daily bread, why, I say, it is time for censorship.

It is a poor compliment to our Western intelligence that this sort of slush is offered to our public, and offered too in the name of a reputable publisher, Doubleday, Page & Co., forsooth. Are we so provincial, are we so unsophisticated, are we so jejune that any old thing will go with us? Perhaps we do deserve our fate. The undiminished sales of a certain one volume flexible known as "The Birds of California" would seem to point that way. We would best munch our biscuit meekly and retire to our kennel to doze until such time as some one shall arise among us with wit enough and conscience enough and courage to prepare an *accurate* pocket guide to western birds. We have asked for bread and they have given us, if not a stone, at least a raw compound of meal and gravel.

## A SECOND LIST OF THE BIRDS OF THE BERKELEY CAMPUS

By JOSEPH GRINNELL

Contribution from the University of California Museum of Vertebrate Zoology

ON JANUARY 28, 1911, the writer of the present paper published\* a nominal list of the "Birds of the Berkeley Campus", together with a brief statement of the avifaunal conditions in the area under consideration.

For two reasons it has seemed advisable to publish a "Second List"†. First, because the early exhaustion of the 500-separate edition of the first list evidenced a local need for a folder of this sort, both in the University and in the public schools of Berkeley and Oakland; and second, because since the appearance of the 1911 list many additional species have been seen on the Campus and much detailed information has been gathered, not only by the writer himself, but also by several well-qualified observers, who kindly placed their notes at his disposal.

The University of California Campus, the area considered in this paper, comprises about 530 acres rising from an elevation of 200 feet at its western edge in the city of Berkeley to a height of 1300 feet at its eastern boundary near the crest of the Berkeley hills. Cutting down from these hills are several ravines or canyons. Heading in the larger of these ravines, Strawberry Creek courses in a general westerly direction through the whole length of the Campus.

Within its 530 acres the Campus furnishes shelter to birds of widely varying associational preferences. The hills from a distance look bare and untimbered save for interrupted tracts of newly-planted pine and eucalyptus. But these really well-grassed hill-slopes constitute a favored haunt of a distinct category of birds, of which the Meadowlark is a characteristic example. The chaparral, or brush, is of two distinct types; one, of which the commonest plant is a dark-foliaged, woody composite (*Baccharis*), is wide-spread on some of the upper slopes, and the other, consisting of snow-berry, hazel and brake, on north-facing and shaded slopes. In the upper part of Strawberry Creek basin are several clumps of madroñas, while

\* Reprint from the University of California Chronicle, vol. XIII, no. 1, 4 pages (unnumbered).

† An edition of 1000 reprints of the present paper is issued.

the stream-courses are lined with bay (or California laurel), alder, and willow. Clumps of bay occur in the heads of the upper ravines and even on the crests of the highest hills. The prevalent tree over the whole Campus is the live-oak, which reaches large dimensions on the lower Campus, and occurs in smaller size mixed with the chaparral of the lower hill-slopes.

The upper, hilly portion of the Campus consists chiefly of truly "wild" land, save as the open parts have been pastured over for many years. This element of wildness accounts for the occurrence of many of the less familiar species of birds. Then on the lower Campus, the growth of planted groves, and gardens, has added to the native features attractive to bird-life. In spite of this, however, there has been a notable decrease in the past six years in the aggregate native bird population. This is partly accounted for by the building up closely of the lower and more level country (and to this extent it is inevitable), and partly by the ravages of house cats and the increase of the English Sparrow.

Number of birds to be seen at any one time is pretty constant. A daily "horizon", that is, the number of species noted in the course of one day's or part-day's observation, consists ordinarily of 20 to 24 species. On July 3, 1909, the writer recorded 29 species; on February 11, 1911, 26 species; on March 25, 1911, 22 species; on January 20, 1912, 20 species. On October 18, 1913, a four hours census showed 27 species and 410 individuals.

There is little evidence of the semi-annual migratory movement of the birds, so conspicuous in some parts of the United States. Our list of transient species is short, and relatively very few individuals of any of the non-resident categories are *through* migrants; the summer visitants and the winter visitants, in each case, simply arrive scatteringly to stay for the season, and their departure is so gradual as to often go unnoticed.

From a distributional standpoint, the Berkeley Campus is situated in the Upper Sonoran life-zone, with a marked Transition or even Boreal infusion noticeable particularly in the summer-visitant category of birds. Of the latter are to be listed the Olive-sided Flycatcher, Western Wood Pewee, Cassin Vireo, Tolmie Warbler, and Allen Hummingbird. The resident Coast Jay, Pine Siskin and Nuttall Sparrow are typically birds of the cool humid coast strip of California. It looks as though the amount of the gap in the continuity of the coast fauna at Golden Gate were simply transported to the eastward across the bay by the prevailing west winds and deposited on the west-facing slopes adjacent to Oakland and Berkeley.

The writer's cordial acknowledgments are hereby extended to Mrs. Amelia Sanborn Allen, Mrs. Hilda Wood Grinnell, Miss Margaret W. Wythe, Dr. Harold C. Bryant, Mr. Tracy I. Storer and Mr. Harry S. Swarth, for notes and records furnished by them. It is chiefly because of the contributions from their stock of information, as recorded in their field note-books, that the writer is able to furnish the accompanying annotations. Initials are used to designate responsibility for specific records.

Classified seasonally we find that 33 of our birds are permanent residents, 21 are summer visitants, 29 are winter visitants and 14 are transients. A total of 97 species is now accredited to the Berkeley Campus, as against 76 three years ago. It is estimated that a mean population of approximately 8000 individual birds is maintained throughout the year within the area here treated.

Because of the arbitrary limitation of the present list to those species which have been seen on the University grounds, a number of well-known birds of the San Francisco Bay region are notably missing. Many of these, such as the Barn

Swallow, Yellow-throat, and Red-winged Blackbird, will doubtless be added in course of time, at least as transients. Intensive observation from season to season for a series of years may be expected largely to augment the list, judging from experience under similar circumstances elsewhere. This very element of incompleteness and expectancy serves as a continual incentive to those interested in bird study to be always alert for the detection of strangers as well as for additional facts concerning well-known species.

CALIFORNIA GREAT BLUE HERON. *Ardea herodias hyperonca*. A rare transient. One seen in flight high over the Campus at 8:30 A. M., April 5, 1913 (H. C. B.).

BLACK-CROWNED NIGHT HERON. *Nycticorax nycticorax naevius*. Occurs as a transient only. The harsh "squawk" has been heard on several occasions at night during the month of September (J. G.). November 2, 1913, three were noted flying low over the hills in a fog (H. C. B.).

KILLDEER. *Oxyechus vociferus vociferus*. Transient only. Heard in flight overhead in April and in August (J. G.).

CALIFORNIA QUAIL. *Lophortyx californica californica*. Common resident. While showing marked preference for tracts of chaparral among the hills, coveys and, occasionally in spring, pairs rove down over the lower Campus. On July 6, 1912, a brood of nine young were hatched in a nest beneath one of the little redwood trees at the back of the Museum building. This brood, with the two alert and constantly attendant parents, remained in the vicinity for five days, before moving up Strawberry Creek to wilder ground. On July 10, there was still the full quota of nine young, which indicates astonishing success in eluding the many prowling cats by night and dogs by day.

BAND-TAILED PIGEON. *Columba fasciata fasciata*. Sporadic winter visitant. On January 5, 1913, at 11 A. M., a flock of eight was observed as it slowly skirted the hillside below the Big C, flying against a strong north wind (J. G. and H. W. G.).

WESTERN MOURNING DOVE. *Zenaidura macroura marginella*. Casual transient. On May 11, 1913, at 12 M., a solitary dove was seen flying swiftly north just over the tree-tops near Budd Hall (J. G.).

TURKEY VULTURE. *Cathartes aura septentrionalis*. Summer visitant. Not infrequently seen in June and July in flight above the hills.

MARSH HAWK. *Circus hudsonius*. Casual winter visitant. One seen harrying over the hillside near the Big C, September 15, 1912 (J. G.).

SHARP-SHINNED HAWK. *Accipiter velox*. Common winter visitant. Earliest fall records: September 30, 1910, September 22, 1912, and October 18, 1913 (J. G.). Seen on all parts of the Campus, and even among shade-trees along city streets.

COOPER HAWK. *Accipiter cooperi*. Fairly common winter visitant. Observed only along the upper part of Strawberry Creek canyon. Early record: September 15, 1912 (J. G.).

WESTERN RED-TAILED HAWK. *Buteo borealis calurus*. Common resident. Occurs all through the hills, where it feeds on the abundant meadow-mice. The stomach of a Red-tailed Hawk taken December 28, 1912, in the Berkeley Hills contained one meadow-mouse and two Jerusalem crickets (H. C. B.). This is the usual big "chicken-hawk", though not fairly so called, in sight almost continually, and circling or poising against the wind above the ridges.

AMERICAN SPARROW HAWK. *Falco sparverius sparverius*. Fairly common resident. Often seen about the hilltops, hovering against the wind, or perched on

some fence-post. Occurs in winter around the Campus buildings, where, with some individuals, a regular roost has been chosen on some projecting cornice or on the tip of a flag-pole.

**BARN OWL.** *Aluco pratincola*. Common resident. Many roost during the day around the buildings on the Campus, and after dark become much in evidence through their wierd vocal demonstrations. They forage far and wide over the city as well as among the hills, feeding exclusively on mice and gophers. A brood was reared on the roof of South Hall in the summer of 1913.

**CALIFORNIA SCREECH OWL.** *Otus asio bendirei*. Common resident. The mellow trill is often heard at night among the oaks of the lower Campus. On the afternoon of October 22, 1908, a Screech Owl was located in a bay-tree near the Faculty Club, where it was being "mobbed" by a much agitated aggregation of Kinglets, Audubon Warblers and Titmice. In one instance a pair of these little owls found its way into the Harmon Gymnasium where its presence excited considerable comment.

**PACIFIC HORNED OWL.** *Bubo virginianus pacificus*. Common resident. The sonorous calls may be heard almost nightly along the east side of Berkeley, emanating from among the hills. Many feathers of Horned Owls are often to be seen along the barbed-wire fences over the hills, where the birds evidently go on the look-out for meadow-mice. A pair of Horned Owls has roosted from time to time for several years in eucalyptus or cypress trees on the northeast side of the Greek Theatre. The stomach of a bird shot in the Berkeley Hills contained two meadow-mice and 27 Jerusalem crickets (H. C. B.).

**BELTED KINGFISHER.** *Ceryle alcyon*. On August 20, 1908, one visited a goldfish pond at Mr. Warren Cheney's garden, 2241 College Avenue; no fish were actually taken out, but one was found dead the next day with a wound in its side (A. S. A.).

**WILLOW WOODPECKER.** *Dryobates pubescens turati*. Resident in very small numbers. A pair has its regular forage-beat along the lower course of Strawberry Creek, from above the College Avenue entrance to the Sather Gate. Live-oaks are worked upon principally.

**NUTTALL WOODPECKER.** *Dryobates nuttalli*. On July 16, 1913, one was closely observed by Dr. L. H. Miller and his summer-session class. It was working in the oaks in Strawberry Creek canyon just above Senior Women's Hall.

**SIERRA RED-BREASTED SAPSUCKER.** *Sphyrapicus varius daggetti*. Irregular winter visitant in small numbers. Seen as early as September 30, 1904 (A. S. A.). A late spring date was March 18, 1911 (T. I. S.). Most often detected in January and February. One bird worked daily one winter season in the oak at the northeast corner of the Museum building. The bark of the upper branches of this oak is riddled with little holes, arranged in transverse circles. Some of these series are evidently many years old.

**CALIFORNIA WOODPECKER.** *Melanerpes formicivorus bairdi*. Irregularly resident. Said to have been numerous many years ago. Not seen of late years, until September 7, 1911 (T. I. S.), when a pair put in its appearance among the oaks of the lower Campus. Thenceforth observed in the vicinity at frequent intervals until September 15, 1912 (A. S. A.), after which date none was seen. The presence on the Campus of as many as three pairs was accounted for at one time, March 19, 1912 (J. G.).

**LEWIS WOODPECKER.** *Asyndesmus lewisi*. September 17, 1911, at 10 A. M., one was plainly seen in north-to-south flight overhead about in line with Bacon Hall (H. S. S. and J. G.). Professor William E. Ritter has informed the writer that this woodpecker was formerly a not uncommon visitor to the Campus.

**RED-SHAFTED FLICKER.** *Colaptes cafer collaris*. Common resident. While most numerous in winter, several cases of nesting have been reported. Quite often individuals are seen about the lower Campus, sometimes perching on buildings.

**ANNA HUMMINGBIRD.** *Calypte anna*. Common resident, likely to be seen on any part of the Campus. Of regular presence around the botanical garden and along the plantings of red geraniums and tobacco elsewhere. Nests have been found situated in live-oak trees on the lower Campus.

**ALLEN HUMMINGBIRD.** *Selasphorus alleni*. Common summer visitant. Arrives very early; first dates: February 25, 1904, February 13, 1906, March 14, 1911, and February 24, 1913 (A. S. A.). The grove around the Greek Theatre is a favorite resort for both species of hummingbird. Nests have been found there, as also along the upper Strawberry Creek. March 15, 1913, a nest and two eggs was found within ten feet of this stream, located in a shrub two feet above the ground (H. C. B.). The adult males are most likely to be found high on the hillsides, at the upper edges of the tracts of chaparral.

**SAY PHOEBE.** *Sayornis sayus*. Observed but rarely on the Campus and only as an early winter visitant. September 19 and 21, 1913, one stayed around the foot-ball bleachers (J. G.). October 16, 1911, at early dusk, one was observed fly-catching on the roof of the Fertilizer Control building (J. G.). November 16, 1912, one was seen in an orchard on the hillside above Mosswood Road (A. S. A.).

**BLACK PHOEBE.** *Sayornis nigricans*. Resident in small numbers. Occurs singly or in pairs along the ravines (when these contain running streams), around the milk ranch up Strawberry Creek canyon, and occasionally on lawns and in gardens, especially where there are fountains. One bird in 1913 had a regular forage-beat between the Greek Theatre and Bacon Hall.

**OLIVE-SIDED FLYCATCHER.** *Nuttallornis borealis*. A summer visitant, having been seen during the months of May to August, inclusive. Earliest observed arrival, May 1, 1913 (J. G.). During May and June the far-reaching, three-syllabled cry of this bird can be heard from almost every point on the Campus. But the birds themselves adhere closely to stations along the bases of the hills, usually in the pine and eucalyptus groves. The call is generally given by the bird as it perches at the summit of a eucalyptus, or upon the bent-over tip-top of a cypress. The grove immediately around the Greek Theatre has been the regular rendezvous of a pair during each of the preceding five summers. Another pair is located near the Institution for the Deaf and Blind; another has been seen near the Center Street entrance. No nests have been seen, but there is no doubt that broods are reared regularly in the vicinity.

This is an occurrence of more than local interest; for the Olive-sided Flycatcher is a typically boreal bird, and, moreover, one that affects evergreen forests as a rule. Yosemite Valley, for instance, exhibits the type of habitat preferred by this species. Its appearance here within the past few years seems to be correlated with the growth of the planted groves, together with the presence of a cool summer climate.

**WESTERN WOOD PEWEE.** *Myiochanes richardsoni richardsoni*. Summer visitant, observed in varying numbers from year to year during the months from May to August, inclusive. Earliest recorded arrival, April 21, 1913 (A. S. A.). Nesting sites are selected along the alder-lined ravines, as well as among eucalyptus groves wherever these occur. One occupied nest was observed July 24, 1909 (J. G.). It was located 25 feet from the ground on a bare horizontal eucalyptus

branch over the path between the women's tennis courts and the Hearst Gymnasium.

**WESTERN FLYCATCHER.** *Empidonax difficilis difficilis*. Common summer visitant. Arrivals have been noted as follows: March 28, 1906 (A. S. A.); March 21, 1911, and March 28, 1912 (J. G.); April 1, 1913 (T. I. S.). Last for the season: September 24, 1908, and September 15, 1912 (J. G.). Nests are located along shaded ravines and in the eucalyptus groves. In one case a brood was reared in a nest ensconced in a niche 18 feet above the ground in the side of an oak trunk near the Faculty Club. In another instance, the nest was built in a fern basket on a porch at 2243 College Avenue. This site was but five feet from a frequently used door, and it was only two feet from the porch-light which shone into the nest on frequent occasions in the evening without appearing to disturb the birds. On May 17 (1908) this nest held four eggs, and two young were successfully reared. In 1909, the same site was chosen, but the nest was subsequently deserted (A. S. A.).

**CALIFORNIA HORNED LARK.** *Otocoris alpestris actia*. A resident species in parts of the San Francisco Bay region, but detected on the Campus only once: a small company seen on the hillside near the Big C, April 3, 1912 (T. I. S.).

**COAST JAY.** *Cyanocitta stelleri carbonacea*. Fairly common resident. Ordinarily restricted closely to the dense growths of bay, live-oak and madroña, up Strawberry and Woolsey canyons, and to the thick grove of planted evergreens around the Greek Theatre. In cloudy or foggy weather the birds rove down over the lower Campus, occasionally even to the Center Street entrance. This is typically a bird of the thick woods in the humid coast belt of California. Around Berkeley, which is somewhat outside of its metropolis, its choice of local environment emphasizes these predilections.

**CALIFORNIA JAY.** *Aphelocoma californica californica*. Abundant resident. A familiar and noisy forager all over the Campus. During the foot-ball season, the jays visit the bleachers regularly for scattered popcorn and peanuts. Acorns in their season constitute a preferred food-source, and many of these are buried by the jays, presumably for future use. Nests are constructed in oak-trees, sometimes on the busiest parts of the Campus. One occupied nest observed March 25, 1911, was placed 25 feet above the ground in a centrally-situated foliage-mass directly over the sidewalk across the road south of the old Chemistry building.

**PINYON JAY.** *Cyanocephalus cyanocephalus*. Rare transient. On October 5, 1911, at 2 P. M., a flock of fully 75 was watched flying south over the Campus. The chorus of characteristic calls first attracted attention; and this, together with the mode of flight and silhouette, rendered recognition perfectly satisfactory (H. S. S. and J. G.).

**WESTERN MEADOWLARK.** *Sturnella neglecta*. Abundant resident on the grassy hill-tops. Also at times visits vacant lots in the city. Before close settlement of the lowlands, it abounded as a regular inhabitant throughout our region.

**BULLOCK ORIOLE.** *Icterus bullocki*. Summer visitant in very small numbers. Dates of first seen: March 31, 1904, April 6, 1911, April 13, 1912, and April 10, 1913 (A. S. A.). A pair had a nest in 1908 in a eucalyptus tree near the Zeta Psi fraternity house on College Avenue (A. S. A.). A full-grown juvenal was seen near the Faculty Club, July 3, 1913 (H. C. B.).

**BREWER BLACKBIRD.** *Euphagus cyanocephalus*. Common resident on the lower part of the Campus. A colony nests each year in the big pines near the

Center Street entrance. During the summer months old and young forage conspicuously over all open ground for grasshoppers and army worms.

**CALIFORNIA PURPLE FINCH.** *Carpodacus purpureus californicus*. Common resident. Found foraging quietly during fall and winter in the upper reaches of the ravines among the hills. In spring and summer the species occurs among trees, especially pine and cypress, on many parts of the lower Campus, where during the months of April and May its loud song is notably in evidence. March 17, 1911, the full song was first heard for that season (J. G.).

**CALIFORNIA LINNET.** *Carpodacus mexicanus frontalis*. Common resident, occurring up on the hills in fall and winter, and scattered over the lower Campus in the breeding season. Here they nest about the ivy-clad buildings. Ten pairs were estimated to be nesting around the old Chemistry building in 1911.

**AMERICAN CROSSBILL.** *Loxia curvirostra minor*. Irregular winter visitant. On February 7, 1909, and for at least ten days previously, several small flocks were to be seen high about the tops of the evergreens around the Greek Theatre and near the Center Street entrance.

**WILLOW GOLDFINCH.** *Astragalinus tristis salicamans*. Known to be regularly resident in the San Francisco Bay region, but as far as the Campus is concerned reported during the summer only. Earliest record, April 26, 1913, and latest, October 12, 1912 (A. S. A.). Many are to be seen in July on the hillsides towards the head of Strawberry Creek canyon, feeding on thistle-heads in company with linnets.

**GREEN-BACKED GOLDFINCH.** *Astragalinus psaltria hesperophilus*. Common resident, occurring in flocks in patches of star-thistle on the hillsides in winter, and at other seasons scattered over the Campus generally, even along the city streets, in pairs or small companies. Often seen feeding fearlessly on dandelion heads on lawns. Nests are built frequently in garden trees, as also in live oaks. Occupied nests have been noted in May and July. Two nests containing young were observed the last week in August, 1908 (J. G.). This bird bears the book-name of "Arkansas" Goldfinch, as well as the above more appropriate one.

**LAWRENCE GOLDFINCH.** *Astragalinus lawrencei*. Observed only as a summer visitant. In June and July, 1909, several pairs were repeatedly seen among live-oaks up Strawberry Creek (J. G.).

**PINE SISKIN.** *Spinus pinus pinus*. Common resident, often associating with the Green-backed Goldfinch. In winter the two species are to be met with in large mixed flocks on the hillsides. February 7, 1909, a dense flock of fully 100 was foraging on the bare ground near the crest of a ridge. Every now and then they would rise in a cloud and attempt to fly across the ridge against the stiff westerly wind, but, apparently failing, would be swept back over the crest, to alight again on the ground. Often observed in spring and summer feeding on dandelion heads on lawns. A nest was discovered in a pine in June, and many yellow-suffused young on the wing were observed by August 4 (1912) (J. G.).

This is another bird of ordinarily Boreal habitat, which finds the cool Berkeley climate to its liking and thus helps to lend a northern complexion to our fauna.

**ENGLISH SPARROW.** *Passer domesticus*. Abundant resident on the lower portion of the Campus. Flocks forage up onto the hills in late summer and fall. Not yet seen up Strawberry Creek beyond the swimming pool. Numbers notably increasing during the past six years. Increase of this exotic interloper is correlated significantly with decrease in numbers of certain native birds. As yet nests are located almost exclusively about the ivy-covered buildings. Breeds from April to August.

WESTERN SAVANNAH SPARROW. *Passerculus sandwichensis alaudinus*. Fairly common winter visitant, occurring in grassy swales among the hill-tops. Often noted during the period from December to February in the near vicinity of the Big C.

WESTERN LARK SPARROW. *Chondestes grammacus strigatus*. Observed only from May to August and in sparse numbers. The hills above North Berkeley seem to be most favorable to this species. Not recorded on the Campus proper since 1909.

INTERMEDIATE SPARROW. *Zonotrichia leucophrys gambeli*. Common winter visitant. Frequents detached brush-patches in scattering flocks, chiefly on the hillsides. Earliest fall dates: September 25, 1906, and September 19, 1907 (A. S. A.); October 6, 1910 (J. G.); September 16, 1912, and September 24, 1913 (A. S. A.).

NUTTALL SPARROW. *Zonotrichia leucophrys nuttalli*. Common resident. Frequents garden shrubbery in town and on the lower Campus, as well as the patches of snow-berry brush and brakes on the shaded hillsides. Nest with young found in clump of pampas-grass in botanical garden, April 5, 1913 (H. C. B.). More numerous in winter, and often flocking with the Golden-crowned Sparrow.

GOLDEN-CROWNED SPARROW. *Zonotrichia coronata*. Abundant winter visitant. Affects brush-patches and shrubbery all over the University grounds. Dates of first appearance in the fall: September 28, 1904, and September 29, 1907 (A. S. A.); October 27, 1908 (J. G.); October 6, 1912, and October 2, 1913 (A. S. A.). Dates of departure in the spring: May 3, 1904, and April 26, 1913 (A. S. A.).

WESTERN CHIPPING SPARROW. *Spizella passerina arizonae*. Now a rather rare summer visitant. More seen in 1909 than in any year since. Dates of arrival, April 15, 1912 (T. I. S.); April 24, 1903 (A. S. A.). Latest fall record, September 21, 1910 (J. G.).

SIERRA JUNCO. *Junco oreganus thurberi*. Irregularly abundant winter visitant. Forages in flocks, both on the ground (usually near trees) and in oak foliage, on most parts of the Campus. Early fall records: October 18, 1906, and October 30, 1907 (A. S. A.); October 17, 1908, and October 13, 1910 (J. G.); November 6, 1911 (H. C. B.); October 17, 1912 (A. S. A.); October 14, 1913 (T. I. S.). Time of departure in the spring: March 30, 1911, and April 14, 1912 (J. G.). On July 10, 1912, an adult pair was discovered in the grove at the east side of the Greek Theatre, and was closely watched for one hour (H. W. G. and J. G.). Although no evidence of actual nesting was secured, the behavior of the birds led to the belief that they were at least "prospecting" for a nesting site. It is possible that sooner or later, as the planted groves become denser and taller, a breeding colony of Juncos will establish itself here, as has been the case in the Arboretum at Stanford University.

RUFIOUS-CROWNED SPARROW. *Aimophila ruficeps ruficeps*. Common resident along open hillsides, affecting the sparse growths of California sage on the south and west-facing slopes. At Professor H. M. Hall's residence, 1615 La Loma Avenue, this ordinarily reclusive species has come to be a familiar door-yard bird, even entering the house regularly, when allowed to, to be fed. The parent birds have brought their young there from the adjacent hill-slope for several successive seasons.

SANTA CRUZ SONG SPARROW. *Melospiza melodia santaecrucis*. Abundant resident along the stream-courses. Many appear in winter in the weed-patches towards the heads of the ravines.

VALDEZ FOX SPARROW. *Passerella iliaca sinuosa*.

YAKUTAT FOX SPARROW. *Passerella iliaca meruloides*. Irregularly common winter visitant, affecting the dense chaparral of the ravines and north-facing hill-sides. First dates: October 12, 1912, and October 4, 1913 (A. S. A.). Latest dates: March 25, 1911 (J. G.); April 24, 1913 (A. S. A.). It is not feasible to assign these records accurately under one or the other of the sub-species named. There are specimens representative of both sub-species, and labelled "Berkeley", in the Museum's collection of bird-skins.

SAN FRANCISCO TOWHEE. *Pipilo maculatus falcifer*. Common resident of the dense hillside chaparral, and thickets along stream-courses. Occurs at times down along Strawberry Creek at least to the Sather Gate. A pair reared a brood in 1909 close to the Faculty Club bridge. Often called Oregon Towhee, or Spurred Towhee.

CALIFORNIA BROWN TOWHEE. *Pipilo crissalis crissalis*. Abundant resident. Affects shrubbery of all sorts, occurring along city hedges and about gardens, as well as through the hills. A nest with young was located in an oak tree near the Center Street entrance, May 17, 1913 (H. C. B.).

PACIFIC BLACK-HEADED GROSBEAK. *Zamelodia melanocephala capitalis*. Fairly common summer visitant. Affects deciduous trees about the Campus and city, as well as alders and oaks up the canyons. Most numerous in late July and August when old and young congregate about the fruiting elderberry bushes on the canyon slopes. Dates of earliest seasonal record: April 16, 1904, April 18, 1911, and April 13, 1912 (A. S. A.); April 16, 1913 (H. C. B.).

LAZULI BUNTING. *Passerina amoena*. Common summer visitant. In May, 1909, singing males were spaced out along Strawberry Creek down as far as Budd Hall. But, more recently, seen only in the upper parts of the canyon. Earliest date of observation, April 24, 1913 (A. S. A.). Nest with two small young in thick growth of brakes one foot above ground, July 3, 1909 (J. G.).

WESTERN TANAGER. *Piranga ludoviciana*. Irregularly transient. Seen in bay trees along Strawberry Creek and in ornamental trees about town, May 14 to 19, 1911 (J. G.), and May 8, 1913 (A. S. A.). One fall record: August 18, 1908 (A. S. A.).

CLIFF SWALLOW. *Petrochelidon lunifrons lunifrons*. Fairly common summer visitant. Dates of first observation: March 14, 1911 (A. S. A.); March 5, 1913 (H. C. B.). Nested for several years on the old dairy barns up Strawberry Creek canyon.

CEDAR WAXWING. *Bombycilla cedrorum*. Irregularly common late-winter visitant. Forages in flocks of 20 to 50, in pepper-trees, wherever these occur, as along city streets. Latest occurrence, May 4, 1913, when a flock of 35 was seen perched at the top of a eucalyptus tree near the Civil Engineering building (H. W. G. and J. G.).

CALIFORNIA SHRIKE. *Lanius ludovicianus gambeli*. Rather scarce resident. Occasional individuals are seen on the open parts of the lower Campus. A pair has its quarters in the pastures above the upper dairy farm, up Strawberry Creek. In a long tramp over the hills, including Grizzly Peak, February 7, 1909, just three shrikes were encountered, all told (J. G.).

WESTERN WARBLING VIREO. *Vireosylva gilva swainsoni*. Common summer visitant. Disperses widely along canyons and among deciduous trees on the Campus and sometimes along the city streets. Early spring records: March 25, 1904, and March 29, 1906 (A. S. A.); March 30, 1911 (J. G.); March 25, 1912 (A. S. A.); March 25, 1913 (H. C. B.). Disappears by the end of August.

CASSIN VIREO. *Lanivireo solitarius cassini*. Rare summer visitant. In June, 1909, a pair was evidently nesting along Strawberry Creek near the Faculty Club. The male was in full song, and was closely observed on several occasions.

HUTTON VIREO. *Vireo huttoni huttoni*. Common resident of the live-oaks up Woolsey and Strawberry Creek canyons. Occasional pairs occur among the oaks on the lower Campus. The peculiar nuptial song is heard as early as February 15.

CALAVERAS WARBLER. *Vermivora ruficapilla gutturalis*. Rare transient. Two were closely observed as they foraged through the foliage of bay trees and willows in the head of a ravine near Grizzly Peak, September 15, 1912 (J. G.).

LUTESCENT WARBLER. *Vermivora celata lutescens*. Common summer visitant. Arrives early: March 21, 1906 (A. S. A.); March 19, 1911, and March 15, 1912 (T. I. S.); March 5, 1913 (H. C. B.). Remains well into September; latest date, September 25, 1908 (J. G.). A forager chiefly in the foliage of live-oaks both among the hills and down on the Campus proper; but nests are located exclusively along creek-banks. A nest found June 12, 1913, was ensconced in a cavity of the ground among dead leaves and vines on the wall of the creek within ten feet of the foot-bridge near the Center Street entrance. There were three fresh eggs at this date (J. G.).

CALIFORNIA YELLOW WARBLER. *Dendroica aestiva brewsteri*. Common summer visitant. Dates of arrival: April 21, 1911 (A. S. A.); April 12, 1912, and April 1, 1913 (T. I. S.). Remains regularly until the middle of September, at which time small companies affect the tree-tops, "chipping" loudly, especially towards sunset. Late dates: September 25, 1908, and September 17, 1910 (J. G.). This warbler is partial to deciduous foliage, and its shrill song may often be heard from the elm-trees which line many of Berkeley's streets.

ALASKA MYRTLE WARBLER. *Dendroica coronata hooveri*. In all probability occurs as a regular winter visitant; but in winter plumage it is so similar to the Audubon Warbler, that the two species are doubtless often confounded. But after the spring molt sets in, sharp distinctions in coloration become apparent. Myrtle Warblers have been seen in numbers in April, foraging in the new foliage of live-oaks around the Museum building. Exact dates were: April 13, 14 and 15, 1912 (J. G. and T. I. S.); March 30 and April 21, 1913 (J. G.).

AUDUBON WARBLER. *Dendroica auduboni auduboni*. Abundant winter visitant, affecting all sorts of trees, chaparral, and even garden shrubbery. Frequently observed fly-catching about the windows and cornices of buildings in the heart of town. Dates of first observation in the fall: October 19, 1904, October 15, 1906, and October 6, 1907 (A. S. A.); October 8, 1908, and October 9, 1910 (J. G.); October 24, 1911, and September 30, 1912 (H. C. B.); September 23, 1913 (T. I. S.). Latest date of observation in the spring. April 15, 1912 (J. G.).

BLACK-THROATED GRAY WARBLER. *Dendroica nigrescens*. Rare transient. Seen repeatedly in the oaks below Mosswood Road in September, 1912. First seen September 15, and small flocks remained in the vicinity for several days thereafter (A. S. A.).

TOWNSEND WARBLER. *Dendroica townsendi*. Fairly common winter visitant, occurring as a tree-foliage forager, with predilections for live-oaks and conifers. Dates of arrival in the fall: October 2, 1904, October 10, 1906, September 29, 1907, and October 1, 1912 (A. S. A.); October 3, 1913 (M. W. W.). Dates of departure, as indicated by last seen: March 30, 1911, April 12, 1912, and March 30, 1913 (J. G.).

**TOLMIE (or MACGILLIVRAY) WARBLER.** *Oporornis tolmiei*. Sparse visitant in summer to certain shaded canyon sides among the hills. The dense chaparral on the north-facing wall of Strawberry Creek canyon harbored at least two breeding pairs in June and July, 1909; on August 4, 1912, two young in first-winter plumage were seen in thickets along Strawberry Creek just above the College Avenue entrance (J. G.).

**LONG-TAILED CHAT.** *Icteria virens longicauda*. Rare transient: heard in early May, 1909, from thickets along Strawberry Creek (J. G.).

**GOLDEN PILEOLATED WARBLER.** *Wilsonia pusilla pileolata*. Common summer visitant, occurring chiefly in thickets close along ravine bottoms. Dates of arrival: March 27, 1911, March 30, 1912, and March 31, 1913 (A. S. A.). In May and June, 1909, a pair nested along the creek near the Faculty Club. None has been noted after the last week of August.

**AMERICAN PIPIT.** *Anthus rubescens*. Irregular winter visitant, appearing at times in considerable flocks on the grassy hill-tops. In rainy weather a small company often visits the open plot of ground just north of the tennis courts. The first dates of seeing them there have been: October 24, 1910, and November 7, 1911 (J. G.); October 25, 1912 (H. C. B.); and October 25, 1913 (J. G.).

**CALIFORNIA THRASHER.** *Toxostoma redivivum redivivum*. Regular resident, locally, in dense chaparral along Strawberry Creek canyon. A pair, or family, has always been in evidence just below the swimming pool, extending its domain up the hillside to Mosswood Road. Another family has its station nearly at the head of the same canyon. This marvelous singer is to be heard at its best in the early mornings of clear days from March to June.

**VIGORS WREN.** *Thryomanes bewicki spilurus*. Common resident of chaparral-covered hillsides as well as brushy ravine-bottoms. Individuals rove down along Strawberry Creek nearly to the Center Street entrance.

**WESTERN HOUSE WREN.** *Troglodytes aëdon parkmani*. Common summer visitant. Earliest dates of record: March 27, 1911 (A. S. A.); March 19, 1912 (J. G.); April 21, 1913 (A. S. A.). Disappears in the fall some time before the 10th of September. Nests are situated in knot-holes of oak-trees. One pair has nested for several seasons within 50 feet west of the Faculty Club.

**WESTERN WINTER WREN.** *Nannus hiemalis pacificus*. Irregular mid-winter visitant. Observed only in brush-tangles and drift-piles along the bed of Strawberry Creek close above and below the College Avenue entrance. Earliest dates: November 3, 1908, and November 1, 1911 (J. G.). Latest dates: January 30, 1904 (A. S. A.), and April 26, 1913 (H. C. B.).

**SIERRA CREEPER.** *Certhia familiaris zelotes*. Occasional mid-winter visitant, frequenting bay-trees and alders along stream-courses. Repeatedly seen along Strawberry Creek between the Faculty Club and Budd Hall. Earliest and latest dates, respectively: December 10, 1911 (A. S. A.), and March 16, 1912 (J. G.).

**RED-BREASTED NUTHATCH.** *Sitta canadensis*. Irregularly common winter visitant, appearing among the pines near the Center Street entrance and in the evergreen grove around the Greek Theatre. Earliest and latest dates of observation: September 24, 1908 (J. G.), and March 24, 1913 (H. C. B.).

**PLAIN TITMOUSE.** *Baeolophus inornatus inornatus*. Common resident among the live-oaks of the lower part of the Campus. Natural hollows of trees are chosen as nesting sites. Unfortunately the custom on the part of the authorities in charge of the grounds, of keeping all dead branches trimmed away and knot-holes filled up with cement, makes conditions unfavorable for birds of such nesting habits to readily find suitable sites. In two cases, regularly occupied nesting

cavities have been destroyed in this manner, and the birds thereby deprived of their homes. Nesting dates are indicated by the finding of a brood of young in the nest, May 12, 1913, and five young still fed by their parents but flying about, May 29, 1913 (H. C. B.).

**SANTA CRUZ CHICKADEE. *Penthestes rufescens barlowi*.** Casual fall visitant, or sporadic transient. One individual put in its appearance in the live-oaks around the Museum of Vertebrate Zoology during October, 1913, and was observed at different times by many interested people. It was first seen October 4, but has not been reported since October 25. On the 21st it was watched from the northeast windows of the Museum building as it foraged in the oak foliage within a range of ten feet, thoroughly displaying the color-features which characterize the race *barlowi*, to the satisfaction of all beholders (J. G., H. C. B., T. I. S., M. W. W., and others).

This race of Chickadee belongs in the Santa Cruz faunal district, that is, the coastal area south from San Francisco into Monterey County. Judging from the climatic peculiarities of the immediate vicinity of Berkeley, it would appear consistent with our knowledge of geographical distribution to expect that, with the aging of our planted groves of conifers, chickadees will find conditions favorable to the establishment here of permanent colonies, as with the Olive-sided Flycatcher and other boreal, and at the same time aboreal, species.

**COAST BUSH-TIT. *Psaltriparus minimus minimus*.** Abundant resident of oak groves and chaparral, wherever these associations occur, all over the Campus. Extreme nesting dates: newly completed nest, up Strawberry Creek canyon, March 25, 1911 (J. G.), and nest with young, near Center Street entrance, June 8, 1911 (H. C. B.).

**INTERMEDIATE WREN-TIT. *Chamaea fasciata fasciata*.** Abundant resident of the chaparral-clothed areas among the hills. Pairs or family parties occasionally rove down along the stream-courses clear across the Campus, rarely to city gardens.

**WESTERN GOLDEN-CROWNED KINGLET. *Regulus satrapa olivaceus*.** Fairly common mid-winter visitant, affecting oak-trees on the Campus proper, as well as up along the canyons. Dates of arrival: October 17, 1908 (J. G.); October 3, 1912, and October 10, 1913 (A. S. A.). Not reported later than January 20, 1912 (J. G.).

**WESTERN RUBY-CROWNED KINGLET. *Regulus calendula cineraceus*.** Abundant winter visitant to all sorts of arborescent vegetation, from chaparral and garden shrubbery to the oldest evergreen groves. Dates of first observation in the fall: October 2, 1904, October 10, 1906, and October 6, 1907 (A. S. A.); October 6, 1908, and October 10, 1911 (J. G.); October 3, 1912 (H. C. B.); October 13, 1913 (A. S. A.). Latest spring record: April 13, 1912 (T. I. S.).

**SITKA KINGLET. *Regulus calendula grinnelli*.** Rare mid-winter visitant. January 23, 1911, a male of this subspecies foraged some minutes through the oak foliage within a few feet of the observers (H. S. S. and J. G.), who were enabled to make a satisfactory comparison with the ordinary Ruby-crowns outside the window—and with skins inside! Other individuals have been identified on the Campus as of this race, but not under such favorable circumstances.

**WESTERN GNATCATCHER. *Polioptila caerulea obscura*.** Observed only by Mrs. Amelia S. Allen, who has records of single individuals seen repeatedly in the chaparral above Mosswood Road. Actual dates of record are: October 4 and 12, and December 28, 1912; September 23, 1913. Apparently to be classed as a transient.

TOWNSEND SOLITAIRE. *Myadestes townsendi*. Rare and irregular mid-winter visitant. One individual observed February 26, 1909, among bay-trees along the lower Strawberry Creek. In January, 1911 (4th to 24th), and in February and up to March 15, 1913, single individuals were repeatedly seen in the pepper trees along the west side of the foot-ball bleachers (J. G. and H. S. S.).

RUSSET-BACKED THRUSH. *Hylocichla ustulata ustulata*. Common summer visitant, occurring in the larger city gardens as well as along the stream-courses on the lower Campus and up in the hills. Arrives late; dates of first observation: May 3, 1904 (A. S. A.); May 1, 1909 (J. G.); April 15, 1911 (A. S. A.); May 3, 1912 (J. G.); April 21, 1913 (A. S. A.). In full song from a few days after arrival until about July 10, after which the birds become extremely quiet. Noted in numbers up to the first week in September. Latest record: September 24, 1908 (J. G.). Nest with four small young by stream near Faculty Club June 23, 1909.

DWARF HERMIT THRUSH. *Hylocichla guttata nanus*. Common winter visitant, appearing in wet weather all over the Campus and through the town, but in dry weather restricted to the shaded canyon sides and wooded ravines. Dates of first seen in the fall: October 16, 1906, and October 16, 1907 (A. S. A.); October 15, 1908, and October 6, 1910 (J. G.); October 4, 1912 (A. S. A.); October 4, 1913 (H. C. B.). Latest spring dates: April 14, 1912 (J. G.); April 17, 1913 (H. C. B.).

WESTERN ROBIN. *Planesticus migratorius propinquus*. Irregularly common mid-winter visitant. At times considerable numbers come to the tall pines near the Center Street entrance at about sundown to roost for the night. Earliest recorded dates of observation in the fall: November 5, 1907 (A. S. A.); November 13, 1910 (J. G.); November 12, 1911, November 4, 1912, and December 14, 1913 (H. C. B.). Last seen in the spring: March 25, 1911 (J. G.); March 15, 1913 (H. C. B.).

VARIED THRUSH. *Ixoreus naevius naevius*. Irregularly common mid-winter visitant. Most numerous as a rule in tracts of bay, but at times affecting live-oaks and even brushy hillsides. Some dates of first observation are: December 1, 1906 (A. S. A.); November 16, 1911 (J. G.); November 16, 1913 (A. S. A.). Late spring records: March 27, 1911 (T. I. S.); April 5, 1912, and March 15, 1913 (J. G.).

WESTERN BLUEBIRD. *Sialia mexicana occidentalis*. Rather rare and sporadic winter visitant. Reported as having been seen on a few unspecified dates about the hill-tops within the Campus domain. February 1, 1913, a large flock was observed on the hillsides near the rifle range (H. C. B.). February 23, 1913, a company of a dozen was seen in flight along a North Berkeley hillside (J. G.).

## FROM FIELD AND STUDY

Some Notes on Sea Birds from Los Angeles County, California.—On October 11, 1913, at Hyperion Beach, Los Angeles County, a single charge of no. 10 shot into a flock of terns brought down four of the birds. Two of these proved to be of the more common species of the region, *Sterna forsteri*, and the other two of the less common *Sterna hirundo*. Willett in his notes on the latter species in *Pacific Coast Avifauna* no. 7, appears to consider it advisable to record actual takes of the birds, thus implying its relative scarcity. It would seem proper, therefore, to record this common flocking of the two species with the suggested equality of numbers. The writer's identification was kindly checked up and concurred in by Mr. H. S. Swarth.

On November 22, 1913, the writer picked up on the beach at Hyperion a specimen of the Slender-billed Shearwater (*Puffinus tenuirostris*). The bird was perfectly fresh and could not have drifted a great distance before being cast upon the sand. Willett mentions but one previous record for this species from southern California, a single specimen taken by A. W. Anthony near San Diego in 1896. The present specimen was much smeared over with oil, which seemed to have been on the feathers some time and which may have been a contributive factor in its demise. Mr. Grinnell, Mr. Swarth and Mr. Willett have examined the specimen and concurred in the identification.—LOYE MILLER, *Los Angeles, California*.

**A New Record for Oregon.**—Having recently acquired a small collection of skins taken last year in Oregon by Mr. George L. Hamlin, I find among them two of the Harris Sparrow, *Zonotrichia querula*. One, a male, was taken February 1, 1912, at Medford, Oregon; and the other, a female, at the same place on the following day. Both are in the post-juvenile, or first winter, plumage.—W. LEON DAWSON, *Santa Barbara, California*.

**Occurrence of the White-tailed Kite in Central California in 1913.**—In the belief that even fragmentary notes concerning rare or disappearing species will prove of decided interest in the course of time, I offer the following notes in regard to the White-tailed Kite (*Elanus leucurus*), a species once numerous in west-central California.

On August 27, 1913, at 5 P. M., two White-tailed Kites were seen circling over a meadow near a line of willows bordering the Russian River near Forestville, Sonoma County. The birds were not over one hundred yards from the train, from which Mrs. Grinnell and I obtained a most satisfactory view of them.

On October 15, 1913, at 8:20 A. M., three White-tailed Kites flew close over the duck-blind which I was occupying, on the Suisun marsh near Cygnus, Solano County. I saw individual birds twice again the same morning; and Mr. W. W. Richards, owner of the duck-preserve upon which my observations were made, informed me that he frequently sees the same sort of bird about the marshes there.

With no doubt whatever, the present rarity of this hawk in California is due to its associational preference for marshes, where its habit of flying slowly back and forth at a moderate height above the ground on the lookout for meadow mice and insects make it an easy target for the thoughtless gunner. In my experience the average sportsman is still unenlightened enough to shoot down any sort of "hawk" that flies his way, provided game is not at the moment expected.

The above records, together with those of Mr. Howard Wright in *THE CONDOR* for September, 1913 (page 184), indicate that there are yet a few of these beautiful and harmless birds at widely separated stations within the state. I had not myself seen the species previously since 1903, near Palo Alto.—J. GRINNELL, *California Museum of Vertebrate Zoology, Berkeley, California*.

**Vermilion Flycatcher in the San Diegan District.**—On October 1, 1913, while shooting on the Olympic Gun Club grounds, about one mile west of Westminster, Orange County, California, I saw six Vermilion Flycatchers (*Pyrocephalus rubinus mexicanus*). They were all females or else immatures, as there were no red males among them. Last winter, however, during the duck season, about half a dozen of the birds were seen at different times, and among them several males in brilliant plumage. It accordingly seems possible that careful search in the right places might prove this species to be not quite so rare a winter visitant west of the mountains as we have heretofore believed.—W. B. JUDSON, *Los Angeles, California*.

**A Second Nest of the Sierra Nevada Rosy Finch.**—On the 21st of July, 1913, while climbing the North Palisade (the second in height, as it is also one of the most difficult of the Sierran peaks, altitude 14,254 feet) in company with a dozen other members of the Sierra Club, my attention was called to a Rosy Finch (*Leucosticte tephrocotis dawsoni*), flitting from point to point across the face of the rock wall. I soon traced it to a niche about ten feet above a narrow ledge along which our future course lay, and which fronted a sheer drop of 200 feet. By dint of a little friendly boosting, the niche was investigated, and I found the female Rosy Finch brooding five young birds about three days old. The nest, which was only three feet in, was of very substantial construction, such as enabled it to endure momentary removal and careful replacement. Unfortunately, neither time nor light nor equipment sufficed for adequate photography. The elevation of the nest was perhaps 13,600 feet.—W. LEON DAWSON, *Santa Barbara, California*.

# THE CONDOR

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## EDITORIAL NOTES AND NEWS

The friends of Mr. Joseph Dixon are relieved to learn that he with his party is safely housed for the winter on the Arctic shore of Alaska, near Demarcation Point. Letters were brought overland by sledge to Circle City during October and November. The latest letter was dated October 16, and reports everyone well and steps already under way towards carrying on winter collecting.

Mr. P. B. Peabody, of Blue Rapids, Kansas, is putting the finishing touches on his bird-book entitled "Nesting Ways". There remain, however, several western birds concerning which additional facts are needed, to bring the accounts to a uniform and satisfactory state of completeness. The author will be grateful for facts relative to any of these: Black Swift, Peale Falcon, Nevada Cowbird, Suisun Song Sparrow, Gray Titmouse, California Sage Sparrow, Monterey Hermit Thrush, and Salt Marsh Yellowthroat.

Southeastern Alaska received an unusual amount of ornithological attention the past year. That most remote of the southeastern fringe of islands, Forrester Island, was studied for three months by Dr. Harold Heath, of Stanford University. While Mr. George Willett explored several of the islands in the vicinity of Sitka. Reports from each of these field-observers are promised for future publication in *THE CONDOR*.

On the afternoon of November 6, 1913, the Museum of History, Science, and Art, in Exposition Park, Los Angeles, was formally opened to the public, the culmination of a

series of events which have been followed with closest interest by the Southern Division of the Cooper Ornithological Club. This dedication formed part of a two days general celebration by the city of Los Angeles, marking the completion of the Owens River aqueduct, the exercises of the second day centering at Exposition Park. The other structures in the park, the State Exposition Building and the Armory, were also dedicated during the afternoon, though their unfinished condition precludes their immediate use by the public; and the site of the great memorial fountain which it is proposed to erect, was the scene of additional exercises.

After the ceremonies the Museum was thrown open for two hours, during which time it was inspected by about 4500 visitors. A reception was held by the Board of Governors in the evening, attended by about a thousand invited guests.

Although this date marks the formal dedication of the institution, two of the three wings, dealing with the natural sciences and with history, respectively, had been informally receiving visitors for nine months previously. The steadily augmenting numbers of these visitors, ranging from 300 to 1000 on Sundays, with a sudden jump to nearly 7000 on the Fourth of July, is sufficient indication of the place the institution is occupying in the life of the city. The added attractions of the art gallery have produced a marked increase in the attendance since the opening; altogether the number of people visiting the building, despite its location so far from the center of town, is encouraging evidence of its appreciation by the general public.

The Southern Division has not been slow to avail itself of the advantages afforded by the Cooper Club's connection with the Museum. Most of the Division's meetings are held in the building, and several of the members have placed their collections here as an eminently secure place of deposit; on the other hand, a number of the exhibition cases have been filled with gifts received from various of our members.

The city of Los Angeles owes a debt of gratitude to Mr. W. M. Bowen, president of the Museum's board of governors, as it is largely to his untiring labors for some years past that not only the Museum, but the entire Exposition Park, with everything included therein, was preserved to the people. The Cooper Club is under no less a debt to Mr. Howard Robertson, our representative on the Museum's governing board, who ably seconded Mr. Bowen in his labors, and who clearly perceived the many ways in which the Museum and the Club could be mutually helpful and beneficial.—H. S. S.

## COMMUNICATION

### A COLLECTOR IN SOUTH AMERICA

EDITOR *THE CONDOR*:

I dropped you a line or two from Lake Junin, Peru, some few weeks since. Am now

busily waiting for a boat to sail for Juan Fernandez Island. The sailing was scheduled for a week ago, but schedules are often broken, one soon discovers here. We spent a month at Lake Titicaca in the Peruvian Andes, and noticed with interest the slower movement and long duration of the South American earthquake as compared with our California ones. We were sitting at the skinning table working on a bird skin, and discussed the quake during the movement as well as noting some movement in the stove pipe and trees near the window. The same "terremoto" shook things and towns much harder to the north and west of us.

Going out in the patio the first morning after our arrival I was greatly surprised to see a California Quail in a large cage with several other birds. A couple of Cinnamon Teal and three or four native teal were in another cage, while a mudhen and a couple of tinamous had the liberty of the yard, and had been kept there for over a year the owner said. It called up scenes in the Joaquin to see Cinnamon Teal sitting about among the reeds in the lake. The black-birds acted the same way as do the redwings, but their wings were yellow patched instead of red.

The flamingos still interest me with their adaptability. Skirting the shores of the lake the morning we left, ice was seen along the edge and at one place we flushed four flamingos as the train rounded a point. They had been getting a cold breakfast in the shallow water. In Pisco Bay, where sea-birds swarm, it enlightened me to see flamingos standing along the bay shore surrounded by pelicans, boobies and gulls, while cormorants fished close by them, and Surf-birds, with smaller shore-birds, ran about their legs.

Glancing out of the window here, I see the lookout barrel on the masthead of a whaler close by, in the bay, and I wonder that anyone could ever have discredited the belief in the efficacy of whaling stations as desirable collecting points for Tubinares.

Hiring a boat yesterday, I rowed out past steamers and warships into the open ocean. The last warship had been passed less than a mile when a bunch of a dozen albatrosses were approached, sitting on the water. Some I might have killed with the auxiliary barrel; others sat about and mingled with the Sooty Shearwaters in their endless southern flight. Giant Fulmars fought with each other and the gulls at the city dump but a few feet from shore; while the grayish Fulmars reminding one so much of the Pacific bird, acted as our northern ones do at Monterey.

I often think of the modest request for a series of Skuas after I'd turned in a couple

at Monterey. Here they fly about the harbors and sit on the water just to leeward, usually, of the gulls. One yesterday was picking himself on a low-lying buoy, while the gulls, closely resembling the Western, perched above on a barge.

Climbing up a canyon in the back part of town the other day to test some auxiliary shells, I heard the call of the California Quail in the brush. This canyon might have been matched in southern California with the surroundings, though most of the birds differed somewhat. Particularly, the only hummer seen was one of the giant fellows resembling a Swift in flight, and in its call reminding me instantly of the squeak of the rat I heard caught in a trap in the room overhead the night before! One sees many birds caged here, and some of them are nice singers. A couple of large, brightly marked plover running loose in a small garden we admired greatly. Sincerely,

R. H. BECK.

*Valparaiso, Chile, November 9, 1913.*

#### PUBLICATIONS REVIEWED.

THE OREGON SPORTSMAN. Published monthly under the direction of WILLIAM L. FINLEY, State Game Warden, 806-7-8 Yeon Building, Portland, Oregon. Price 5 cents a copy, 50 cents a year.

When we heard of a state game warden in Oregon who believed in education rather than police patrol as a means of enforcing game laws, we wondered what methods would be used. Up to the present time we have been made acquainted with two methods, both of which are timely and will without doubt meet with great success. The first is a series of lectures on game given throughout the state. The second is a new publication called "The Oregon Sportsman," which is now four months old, the first number having appeared in September, 1913.

The particularly noticeable characteristics of this new publication and which are bound to make it successful are, first, the attractive cover, usually a reproduction of a photograph of some game animal or bird in the wild; second, the catchy headings and "readableness" of the text, and third, the small cost.

The contents of each number is distributed under three main headings—editorials, general notes, and notes from counties. An occasional short article is contributed, and the first number contained a report of the hunting and fishing licenses sold. An idea of the editorial column can be had from the following gleaned from the first number: "The State Board of Fish and Game Commissioners is striving to make fishing and hunt-

ing important resources of Oregon. There is no reason why the State should not use her wild birds and animals as a prudent farmer protects and uses his flocks and herds. Game protection and game propagation is a business proposition not only for the man who lives in the city, but for the farmer, the fruit grower and the timber man. Game laws and game protection cannot be made effective until we get the real interest of the farmers, homesteaders, and other land owners throughout the state.

"Game protection is not a political question. Nor is it entirely a legal question. It has an economic aspect, and above all it requires educational work."

The November number cites five instances of accidental shooting during the past deer season and gives the following warning to hunters: "Hunters should never shoot at moving brush, leaves or grass with the expectation of killing game. It is dangerous, for the moving object is likely to be a man. Never shoot at any object until you are absolutely positive of identification." The main article of this issue is entitled "Refuges for wild birds and animals." Thus it can be seen that the contents of "The Oregon Sportsman" is of the eminently appropriate sort.

But setting aside the material itself, it is the idea embodied that appeals to the reviewer; for he believes that there can be no consistent obedience to the law without a knowledge of the necessity for the law and some sympathy for it. Mr. Finley, State Game Warden of Oregon, by means of education, is laying a sure and sound foundation not only for the automatic enforcement of game laws but for the conservation of Oregon's natural resources.—H. C. BRYANT.

SOME BIRDS OF THE FRESNO DISTRICT, CALIFORNIA. By JOHN G. TYLER (Pacific Coast Avifauna, no. 9, Oct. 1, 1913, pp. 1-114).

The Pacific Coast Avifauna series, published by the Cooper Ornithological Club, has just received another addition to its already long list of valuable papers published under that head. Number 9 of this series is a non-technical paper dealing purely with life histories and the manner of occurrence in the region of the species treated.

One hundred and sixty-one species are listed, evidently not a complete catalogue of the birds of the region, as a number of species not included are known at least to migrate through the state in general, and undoubtedly will be found eventually in the Fresno region. Accounts are well written and accurate, the description of flights of

Turkey Buzzards being a good example of the scores of vivid pictures of common phases of the lives of familiar birds, things recognizable at once to all bird students, and yet very seldom put into print.

The author adheres closely to the usages of the 1910 edition of the A. O. U. *Check-List*, evidently wishing to avoid discussion of the technicalities of nomenclature and classification, and to make his contribution purely one of the life-histories of birds. The only exception noted is his treatment of the San Joaquin Valley Wren, for which he uses the name *drymoccus*, rather than include it under *charienturus*, as in the *Check-List*.

In the case of the red-breasted Sapsucker the binomial *Sphyrapicus ruber* is used instead of the trinomial *S. ruber ruber*, the uniform usage throughout the remainder of the paper, apparently as a passive protest against the treatment accorded this species in the *Check-List*, which, however, through the policy adopted in the paper, he feels obliged to follow. In the cases of the Red-breasted Sapsucker, Brown Towhee and Blue Grosbeak, although the *Check-List* name is the one used, brief footnotes, or else a statement in the text, contain references to dissenting opinions.

The paper will serve as a striking example of the excellent work that can be done by a maximum amount of careful and accurate bird observation, with a minimum of bird killing. The identifications are carefully made, nevertheless, and where there was doubt specimens were collected and submitted to experts. The small amount of collecting is reflected, however, in the rather uneven balance of certain subspecies, and also in the absence from the list of some birds, which, with hardly a doubt occur in the general region. Thus the occurrence of *Mclospiza lincolni striata*, *Passerella iliaca schistacea*, and *Hylocichla guttata nanus*, together with the absence of *Mclospiza lincolni lincolni*, *Passerella iliaca megarhyncha*, and *Hylocichla guttata guttata*, if truly indicative of conditions, is a rather remarkable state of affairs deserving of careful investigation. No doubt is meant to be cast upon the accuracy of the identification of the specimens collected, but it seems probable that more extensive collecting would show that by chance some of the more uncommon visitants were gathered in, while more common ones were not secured. The notes on the hummingbirds also could probably be considerably extended by a careful collection of specimens.

The paper should be very useful in many ways. It is a reliable record of present conditions in a rapidly changing region; students of life-histories of birds, and of dis-

tribution, will find here much valuable data; and the amateur bird student and the school-teacher with nature classes in the region treated, will have a good, reliable text-book to fall back upon. It is to be hoped that the work can be brought to the attention of the two last mentioned groups in particular.

It is fortunate, and also a recommendation for the work published by Mr. Tyler, that such competent experts as J. Grinnell and H. S. Swarth were prevailed upon to edit the paper.—FRANK S. DAGGETT.

THE SEQUENCE OF PLUMAGES OF THE ROOK, With Special Reference to the Molt of the "Face." By H. F. WITHERBY. (British Birds, London, vol. VII, no. 5, Oct. 1, 1913, pp. 126-139, pls. 4-11).

In a great deal of the work that has been done on the molts of birds, little attention has been paid to the molt of the less conspicuous feathers and feather-structures of birds, and it is a pleasure to find that this phase of the subject is coming into the prominence which it undoubtedly deserves. It is to be hoped that Mr. Witherby's investigation of the molts of the "face" of the Rook (*Corvus frugilegus frugilegus*) is the herald of much more study along this line, and that the interesting results of his research may stimulate others to do this sort of work, realizing that the less conspicuous structures are not necessarily less interesting or less significant. Throughout all the literature on the subject of molts, scarcely a reference can be found to the shedding of filoplumes, or of the down feathers of adult birds which possess them, nor has the reviewer hitherto been able to find any thorough account of the molts of the rictal and other faeial bristles, ear-coverts, eye-lashes, oil-gland "tuft," or other modified feathers of the head and trunk. In a few cases the life and development of specialized feathers have been studied, as for instance the "racket" feathers of the motmots; but where is there any thorough light on the development, molt, and seasonal changes of the "brush" of a turkey, the powder down of herons, or the eye-lashes of any birds?

Mr. Witherby devotes the first half of his article on the Rook to a study of the molt and history of the feathers of those parts of the "face" which ultimately become bare, namely, the upper throat, chin, forehead, base of mandibles, and lores. The results which he obtained, well illustrated by the first seven plates accompanying the article, are very interesting in showing what the trend of evolution has been in bringing about the bare face of the European Rook (*Corvus f. frugilegus*), and in demonstrating how such bare spots may have arisen in other birds which have them. The comparison with the East-

ern Rook (*Corvus f. pastinator*) is particularly interesting. In the second part of his article, the method and general character of all the molts of the species is carefully described, so far as contour and flight feathers are concerned; but here, again, as in other literature on the subject, no reference is made to the molt and acquisition of filoplumes, relative to the contour feather with which they are associated, nor is there any statement concerning the loss and replacement of eye-lashes; moreover, it is not made clear what is the subsequent history of the nasal bristles. Nevertheless, Mr. Witherby's article is undeniably a step in the right direction, and it is hoped that it will be followed by further work along similar lines.—ASA C. CHANDLER.

A STUDY OF A COLLECTION OF GEESE OF THE *Branta canadensis* GROUP FROM THE SAN JOAQUIN VALLEY, CALIFORNIA, By HARRY S. SWARTH (Univ. Calif. Publ. Zool., vol 12, no. 1, pp. 1-24, 2 pls., 8 text figs.).

In a paper of 24 pages Mr. Swarth sets forth his conclusions as to the status in California and probable relationships of the four forms of the *Branta canadensis* group, as derived from the study of one hundred and fifty-three skins. The author finds that great confusion has arisen in connection with our effort to understand these geese, because of the highly variable character of certain marks, notably the white cervical collar and the black throat line, marks which have previously been relied upon for diagnostic distinction. This variability is convincingly illustrated by two tinted plates, which exhibit twenty heads of *B. c. minima*, of which no two are alike in pattern, or even in correlation of the discredited characters. Mr. Swarth finds that measurements, especially of bills and tarsi, when taken in connection with the general color tone of under plumage, whether light or dark, afford the only reliable basis of distinction. He concludes from these data that the only breeding form in California is *Branta canadensis canadensis*; that *Branta c. occidentalis* has no status as a species of California, but that it is a nearly resident form occupying the humid northwest coast region, where it probably intergrades with *canadensis* upon the east and *hutchinsi* on the north; and he predicts that a closer study of conditions in the Northwest will show that *hutchinsi* and *minima* do not, as has been frequently asserted, overlap in their breeding ranges, but that a regular gradation of size from *hutchinsi* to *minima* will be found to exist as the region is traversed—though whether from east to west or south to north does not yet appear. This

paper presents a masterly analysis of a confusing situation, and its conclusions must take first rank as authority because of their fairness, their comprehensiveness, and their critical acumen.—W. L. DAWSON.

## MINUTES OF COOPER CLUB MEETINGS

### SOUTHERN DIVISION

NOVEMBER.—The regular monthly meeting of the Southern Division was held at the Museum of History, Science and Art, Thursday evening, November 20, with President Law in the chair. The following members were present: Mrs. E. H. Husher and Mrs. F. T. Bicknell, and Messrs. Cookman, Daggett, Esterly, Fischer, Grey, Grinnell, Howell, Huey, Law, Miller, Morcom, Rich, Robertson, Tyler, Van Rossem, Welch, Willett, Wood, and Wyman. Visitors present were: Mrs. Robert Fargo and Messrs. R. L. Beardsley, F. T. Bicknell, C. L. Edwards, and Fordyce Grinnell, Jr.

In the absence of the secretary, Mr. L. E. Wyman was appointed to perform his duties. The minutes of the October meeting were read and approved. New members elected were: Allen J. Stover, Corvallis, Oregon; Amelia Sanborn Allen, Berkeley; E. F. Pope, Colmesneil, Texas. New names presented were: F. R. Decker, Prosser, Washington, and G. H. Lings, Nyack, New York, both proposed by W. Lee Chambers; Edwin S. Parker, Berkeley, proposed by J. Grinnell; and P. C. Dutton, Stone Staffs, England, proposed by H. W. Carriger.

A matter up for discussion was the nature of the relations between the Cooper Club and Mr. W. Leon Dawson, in the matter of the Club's co-operating with him in the production of his "Birds of California". Mr. Dawson had requested that some member or members be appointed to work together with him, chiefly on the technical portions of the book, to pass upon the accuracy, adequacy, and practical value of the plumage descriptions, ranges, etc., as given in his manuscript, and to make any suggestions that might prove helpful. The Northern Division had already acted in the matter, proposing that the presidents and secretaries of the two divisions form such a cooperative committee, and that they appoint some one individual, either of their own number or another member of the Club, who should do practically all of the supervisory work. It was further resolved that while this individual do all the active work, the committee be empowered to decide disputed points and that as far as the Club is concerned, the action of the committee be final and conclusive.

Mr. Grinnell spoke at some length on the English Sparrow problem, discussing methods used in attempting to exterminate the pest or hold it in check, and reviewing the status of the bird throughout the country. Adjourned.—L. E. WYMAN, *Secretary pro tem.*

### NORTHERN DIVISION

NOVEMBER.—The regular monthly meeting of the Cooper Ornithological Club was held in the research room of the Museum of Vertebrate Zoology, Berkeley, California, Thursday evening, November 20, 1913. President Carriger presided with the following members present: Mrs. Allen, Miss Atsatt, Messrs. Bade, Bryant, Camp, Lastreto, Parker, Shelton, Storer, and W. P. Taylor. Miss Rhoads was present as a visitor.

The minutes of the October meeting were read and approved, followed by the reading of the Southern Division minutes for October.

The following were elected to membership: Miss Louise LeBris, Miss Olive Swezy, Chas. H. Culp, W. C. Bradbury, J. W. Eggleston, C. B. Lastreto, and H. A. Edwards. The following were proposed for membership: Miss Helen Powell, 2703 Dwight Way, Berkeley, proposed by W. F. Bade; L. R. Reynolds, 833 Market Street, San Francisco, proposed by J. Grinnell; Allan J. Stover, Corvallis, Oregon, proposed by Geo. F. Sykes; and E. F. Pope, Colmesneil, Texas, proposed by H. W. Carriger.

The resignation of Charles W. Bowles was read and laid over until next meeting.

A communication from the Pacific Coast Association of Scientific Societies was read asking whether the Cooper Club would take part in the meeting of the Association to be held in Seattle in 1914. It was the consensus of opinion among those present that no general meeting of the Club could be held at that time. The annual assessment for membership in the Association was ordered paid, subject to the action of the Southern Division.

The paper of the evening by Dr. Harold C. Bryant, entitled "Life-histories of Some Ducks in California," was then read. The paper comprised chapters on the Wood Duck, Baldpate, Harlequin, and Canvasback, from a general work now being prepared by Messrs. Grinnell and Bryant on the game birds of the state. Among the topics discussed were: migration, distinguishing characteristics, nesting, broods, feeding-grounds, food, flocking, numbers past and present, and protection needed. Adjourned.—TRACY I. STORER, *Secretary*.

**For Sale, Exchange and Want Column.**—In this space members of the Cooper Club are allowed one notice in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, *Eagle Rock, Los Angeles County, California*.

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Coues (Prof. Elliott) Handbook of Field and General Ornithology, a manual of the structure and classification of birds, with instructions for collecting and preserving specimens, illustrated, 8vo, cloth. London, 1900, @ \$2.00.

This handbook is a reprint of certain portions of Dr. Coues's "Key to North American Birds," the standard textbook of ornithology.

Coues' *Birds of the North West*, a handbook of the ornithology of the region drained by the Missouri River and its tributaries, 8vo, cloth, 1874, binding broken, otherwise perfect @ \$3.00.

*Birds of the Colorado Valley*. A repository of scientific and popular information concerning No. Am. Ornithology. Washington, 1878. Having the invaluable bibliography. Fine copy of this scarce book. \$5.00.

Beddard (Frank E., M. A.) —The Structure and Classification of Birds; 252 illustrations, 8vo, 1898, new, (published at \$5.00) \$3.00.

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Volume XVI

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Number 2



W.K.F.

COOPER ORNITHOLOGICAL CLUB



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Volume XVI

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Number 2

HISTORY OF A PAIR OF PACIFIC HORNED OWLS

By J. B. DIXON

WITH EIGHT PHOTOS BY THE AUTHOR



TOWARD the east end of the Escondido Valley, San Diego County, California, there arises from the valley floor a steep and rocky ridge. On the eastern slope of this ridge and in the big trees of the creek bottom directly beneath, two Pacific Horned Owls (*Bubo virginianus pacificus*) have made their home for years. This pair of birds was selected for observation because they were close to my home, and their surroundings were typical for this bird in our section.

To the east and south of this location the Escondido valley stretches away, covered with orchards, vineyards, and fields of alfalfa and grain. Two creek bottoms cross this part of the valley, and there are a few small ponds scattered throughout during the spring of the year. To the north and west are rolling, brush-covered hills, with an occasional inland valley of small acreage. The edges of the small valleys and clearings are thickly populated with the smaller mammals which make up the principal diet of the Horned Owl.

Records of nesting dates for this pair of birds are available for the past thirteen years. During this time, to my knowledge, there have been killed in this immediate vicinity four adult Horned Owls, but apparently the remaining bird had very little trouble in securing a mate, as the site has never missed being occupied for a single season.

Glancing over the records we find that this pair has nested in old hawk's nests in trees three times, in an old hawk's or raven's nest in a cliff, twice, and in every other instance has made its home on some rocky ledge on this steep hillside. The variations in nesting dates have been very slight, considering the great variation in the weather of the different seasons during this series of years. The earliest date recorded for a complete set of eggs was January 29 (1911), with two eggs; the latest date was February 14 (1907), when a set of three

eggs, barely commenced in incubation, was taken. In two instances a period of four days elapsed between the laying of the first and the second egg, incubation starting with the deposit of the first egg. In five instances three eggs, and in every other case two, were a complete set. This pair of birds would invariably deposit a second set, and even a third, within twenty-one days from the time the first set was disturbed. During the wet seasons of 1907, 1908 and 1909 three eggs were laid, possibly indicating that the birds were finding food more plentiful than formerly.

For the past several years I have been observing these birds, hoping that some time they would select a site where closer observation of their nesting habits would be possible. For the season of 1912 they chose a site which was on a cliff-face overlooking a deep and narrow canyon. From the opposite wall of this canyon the sitting bird could be observed, but was too far away for photographic purposes. In this nest two lusty youngsters were reared. For some

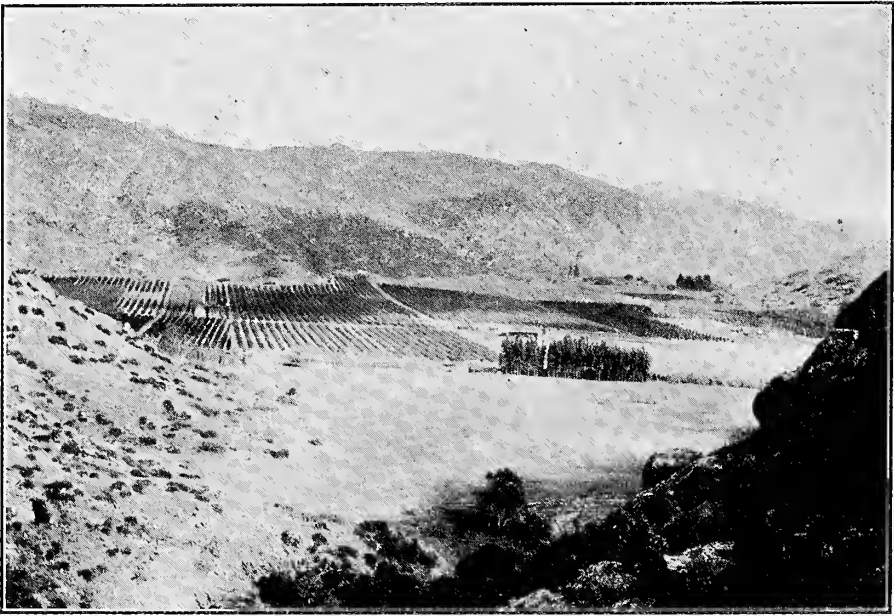


Fig. 17. VIEW FROM NESTING SITE OF PACIFIC HORNED OWL NEAR ESCONDIDO, CALIFORNIA

reason, best known to themselves, the birds left this site at the beginning of the present season, and set up housekeeping about three hundred feet below, in the same canyon, in the most accessible place they had yet used. Here, on the 2nd of February, we located the nest by flushing the bird, after two hours of hitherto fruitless search for her.

She had selected a ledge in a large rock pile overlooking the canyon and valley below. The two eggs the nest contained appeared to be fresh. This nest was visited at intervals of once a week for the next four weeks, and in every instance one bird flushed from the nest just as I was climbing up over the big rock adjacent, its mate leaving its perch in a small oak tree farther down the hillside when I was yet some distance away. The bird leaving the nest would alight on some nearby rock, and ruffling up its feathers, let out a cat-call or two, but seemed little disturbed by my intrusion, and would immediately resume incuba-

tion if I withdrew a short distance. When nearing the nesting site upon the morning of the second of March, just four weeks after the nest was located, the bird usually perched in the oak was nowhere to be seen, but upon stealthily

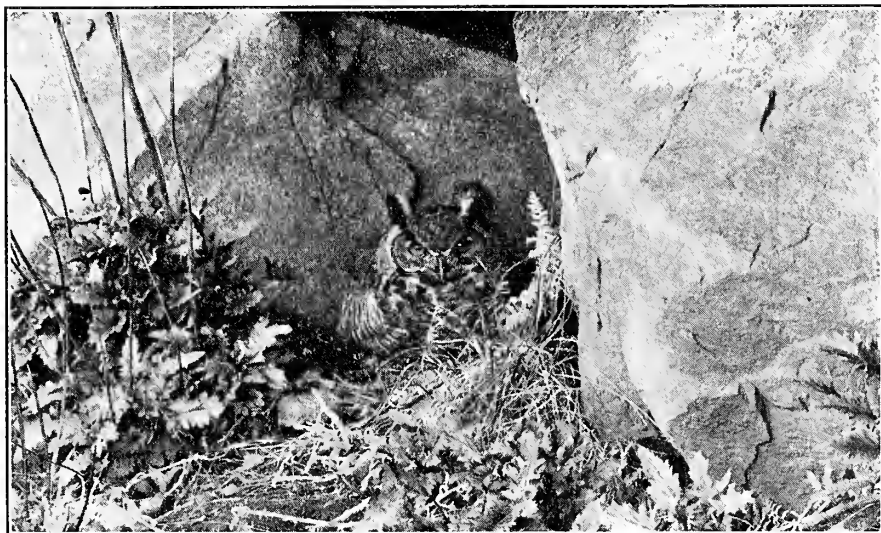


Fig. 18. PACIFIC HORNED OWL ON NEST; FIRST POSITION, FACING OUTWARD

creeping to the crest of the large rock across from the nest, and raising my head just enough to see over, I found myself gazing into the moon-like eyes of one of

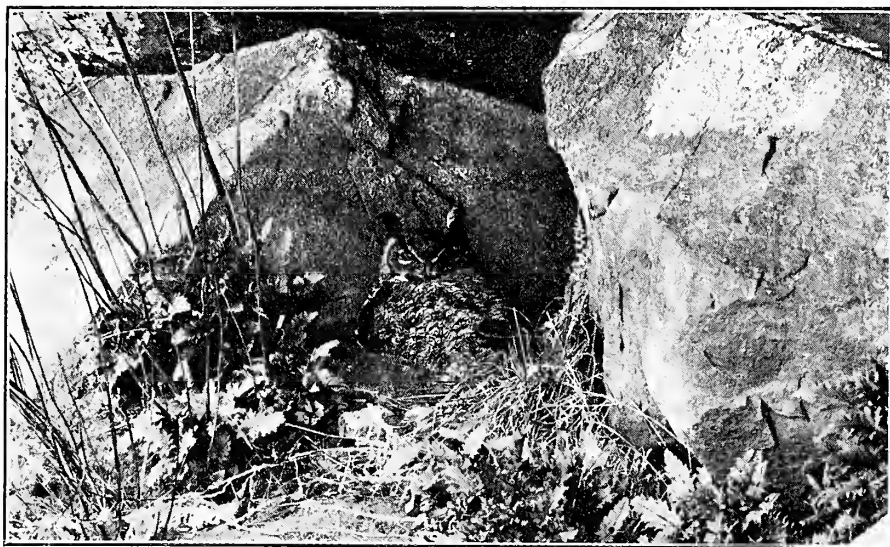


Fig. 19. PACIFIC HORNED OWL ON NEST; SECOND POSITION, TURNED AROUND AND LOOKING OUT OVER HER BACK

the old birds. Beyond a slight ruffling of the feathers over the whole body and especially those of the throat, she paid no attention to me. This being the first time I had succeeded in getting so close, I immediately secured two exposures



Fig 20. EGGS AND NEST OF PACIFIC HORNED OWL, SHOWING NATURE OF NESTING SITE

and crept away leaving madam in complete possession. The better of the two negatives is shown in the picture of the sitting bird facing you (fig. 18).



Fig. 21. PACIFIC HORNED OWL'S NEST; EGG AND NEWLY HATCHED YOUNG;  
BODY OF POCKET RAT IN BACK-GROUND

Hoping to secure something better I returned again after dinner and upon making a cautious ascent of the rockpile, found madam as approachable as ever; she now disdained to honor me with a front view. She had turned completely

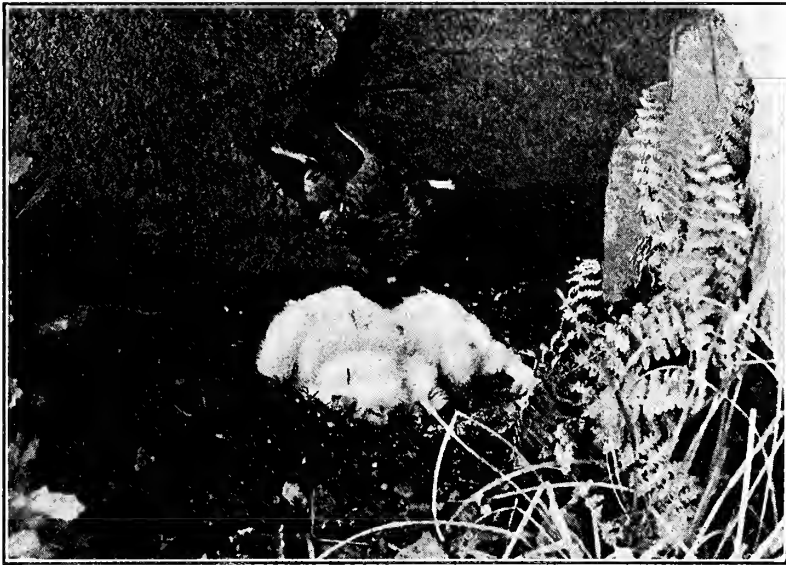


Fig. 22. YOUNG PACIFIC HORNED OWLS ONE WEEK OLD; PORTION OF  
WOOD RAT IN BACK-GROUND

around and was now looking over her back at me, demonstrating that she certainly was in possession of a rubber neck! Using the single combination of my

Turner-Reich lens of eighteen-inch focus, stopping down to 64 U. S., and giving an exposure of ten seconds on a Seed number 30 plate, I secured a negative of her in this position which is the best one of all. Some idea of the value of a good convertible lens in this work may be secured by comparing the picture of the sitting bird with that of the nest and surrounding rocks (fig. 20), both taken from the same spot. The double combination of the lens of six and one-half inch focus was used in the latter picture. A slight movement of the focusing cloth after this exposure was too much for the nerves of the bird, and she was off like a flash, but so quietly as to be unheard even at the short distance I was from the nest.

Both birds put in an appearance after the one left the nest, but beyond cat-



Fig. 23. PACIFIC HORNED OWLS THREE WEEKS OLD; PORTION OF RABBIT  
IN FOREGROUND

calling and "who-who"-ing around, made no disturbance. The mate of the sitting bird flew out from a small sumac bush on the steep hillside directly above. I had always supposed there was considerable difference in appearance between the male and the female birds, but I could not tell one from the other except for one having an unusually white feather in its "horn". This feather shows up very plainly in the picture of the sitting bird. One was much wilder than the other and could not be approached very closely, indicating that they took turn about in the incubation of the eggs.

The cause of the extreme bravery of the sitting bird was at once apparent upon looking into the nest. One owlet was out of the shell and the remaining egg was pipped. This is conclusive evidence that the period of incubation is

over twenty-eight days for this bird, as the nest, when found exactly four weeks previously, had a complete set of eggs in it. I left the nest at once upon finding out what was in it, as I was afraid the owlets would chill, it being a wet and cloudy day. The little owl just out of the shell kept up a lusty cheeping, and when I withdrew a short distance, the old owl returned to the nest without delay.

On the 5th of March I again visited the nest and found both owlets out of the shell, and both set up a vigorous cheeping upon the old bird's leaving. I wished to secure another negative of the old bird upon the nest, so set up my camera and sat down to wait. The only thing that marred the stillness of the afternoon was the incessant cheeping of the owlets. I had been sitting with my back toward the nest, looking off down into the valley, when all of a sudden the cheeping of the owlets ceased, and upon looking around I found that the old bird had returned so noiselessly that I had not heard her, although I had been intently listening. She proved too wary for further exposures, but after leaving

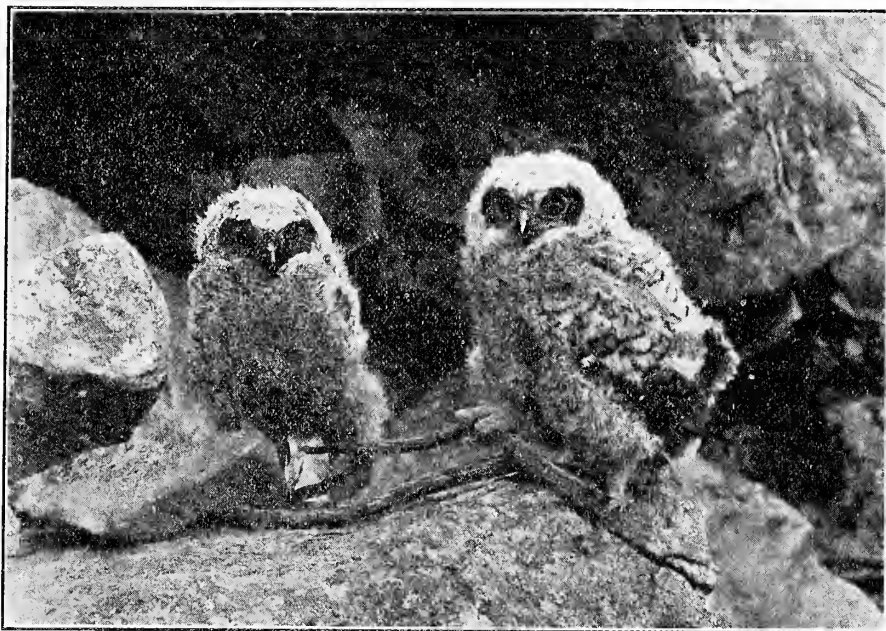


Fig. 24. PACIFIC HORNED OWLS FIVE WEEKS OLD

the nest would always return, floating down from the steep hillside above like a small boy's kite, both wings extended, and would light on the nest-ledge as noiselessly as a bit of thistle down. The way she could travel through the air so noiselessly was absolutely uncanny. Upon settling on her young she made a short hissing noise, not unlike that of a goose but more subdued, and the youngsters would immediately cease their complaint. Three or four times she did this and I at first thought it was directed at me, but finally concluded that it was directed at the youngsters, as they then always became quiet.

As the owlets grew older the parent birds became wilder, never again allowing the intimacy shown during the hatching period. The young owls developed rather slowly until they were three weeks old, but from then on made a marvelous growth. Photographs of the young birds at their different ages give a better idea of the growth than mere words. Seven weeks from the time of hatching the two young owls left their nest for good, taking up their abode in

the brush and rocks of the steep hillside. They were still unable to fly more than a short distance, but were safe from further handling on account of their large, sharp claws, and their ability to fly and scramble over the rough surface faster than one could easily follow.

This pair of birds did considerable flying about and hunting on cloudy days. Their hearing was extremely good and their sight in the daytime was much better than I expected. An accurate account of food found in the nest at the time of the various visits gives us the following: parts of two brush rabbits, three wood rats, and five pocket rats. On only one occasion was there any indication of these owls feeding upon other birds, that being a small bunch of quail feathers at the base of the cliff, and I am sure that birds form but a very small percentage of their food. Otherwise we would undoubtedly have found some evidence in the line of feathers in or around the nest.

From all my observations of this pair of birds, extending over a long series of years, I would say that they were far more a benefit to the farmer and orchardist than a menace, in spite of the unfavorable reputation this species generally bears.

*Escondido, California, December 26, 1913.*

## DESTRUCTION OF BIRDS IN CALIFORNIA BY FUMIGATION OF TREES

By A. BRAZIER HOWELL

FEW people realize, I imagine, to what a great extent certain passerine birds are destroyed by the fumigation of citrus trees in California. Probably more birds of this group are killed each year in the state by this, than by any other agency of human operation. From time to time articles have appeared registering a protest against the use of poisons in sprays because a few birds have been killed by eating the fruit or insects with which the poison has come in contact, but no one seems to have pointed in print to the destruction caused by fumigation practice.

For those not familiar with the sight, it is necessary to explain that in order to kill the black scale, the greatest and most widespread citrus pest that we have, the trees are treated with hydrocyanic acid gas. As a covering to confine the gas the sheet tent is the type most often used. To one end of a long light pole is permanently tied a rope, and here is affixed a corner of the tent. Two men working in unison and each with such a pole, brace the free end with their feet and pulling hard on the rope, hoist the tent sailing over the tree in but a few seconds, hardly touching it during the process. Beneath the tent is then placed a jug containing a mixture of water, sulphuric acid and potassium cyanide, and by this is generated the deadly gas. The whole outfit is allowed to remain in position for forty or fifty minutes. This is done only between sunset and sunrise because if attempted in the daytime, certain burning of the fruit and foliage would result. Fumigation is carried on from August until January. As the tree is not disturbed in any way until the tent falls in place, any bird roosting therein is sure to be killed.

The exact location of a grove has much to do with the numbers of birds

that habitually resort to it at night, for one that is surrounded by other groves or plowed ground would not prove as attractive as one that is bordered by patches of weeds or brush. Also the bird mortality on a certain tract would vary greatly according to the time of the year when fumigation is undertaken. If during August, no dead Dwarf Hermit Thrushes, Gambel Sparrows nor Audubon Warblers would be found. Later in the season flocks of House Finches seem to frequent the groves more during the night, than in the early fall.

Conditions were observed only in my own and nearby groves, so my generalities applying to supposedly similar conditions farther afield must not be taken for absolute proof. In this case, however, what holds good in one district must apply to a greater or less extent to all the citrus centers of the state.

At my orange grove in Covina, fumigating was begun November 25, 1911, and most of the trees were treated, taking, in all, four nights. During the first night two hundred large trees were finished, and the next morning I counted under them the following dead birds:

- 37 House Finches (*Carpodacus mexicanus frontalis*)
- 24 Goldfinches (*Astragalinus tristis salicamans* and *A. psaltria hesperophilus*)
- 11 Audubon Warblers (*Dendroica auduboni auduboni*)
- 7 Gambel Sparrows (*Zonotrichia leucophrys gambeli*)
- 4 San Diego Song Sparrows (*Melospiza melodia cooperi*)
- 4 Western Chipping Sparrows (*Spizella passerina arizonae*)
- 3 Hermit Thrushes (*Hylocichla guttata nanus*)
- 1 Western Mourning Dove (*Zenaidura macroura marginella*)
- 1 Anthony Towhee (*Pipilo crissalis senicula*)

This was the only time that I made a careful and accurate count (though I may have missed several), but there seemed to be slightly more birds than on any other day that observations were made. Also my grove would probably give a greater count than the average, as on two sides it adjoins weedy land which proves a rather attractive feeding ground to the birds. Subsequent to the above date I have found, besides the forms already enumerated, a few Western Mockingbirds (*Mimus polyglottos leucopterus*), California Thrashers (*Troxotoma redivivum redivivum*), a Dusky Warbler (*Vermivora cclata sordida*), and a partly decomposed hummingbird of some kind. Groves in other districts, as in the foothills or along the rivers, must have additional species roosting in them. A citrus tree and especially the orange, having rather dense foliage, presents a snug retreat, and it seems safe to say that practically all species would be found in them that habitually roost in the low trees of the districts in which the groves occur. From my own experience I am led to believe that Valley Quail (*Lophortyx californica vallicola*), although they commonly pass the night in the groves, do not suffer to any extent by fumigation, for they take alarm very easily and are driven out of the trees at any hour by any suspicious activity near-by.

Under two hundred trees I found ninety-two dead birds and there are 200,000 acres of bearing citrus groves in the state, planted with over eighty trees to the acre. These 1,600,000 trees are fumigated on an average every two years, which would give a total of 360,000 dead birds each year. As noted above, I believe this estimate to be slightly in excess of the real number, but even if we take but a third of this amount we must consider that it takes place on an aggregate of one hundred and fifty-three square miles. This is a large mortality for so small an area every two years, or only half the area each year.

Is there a remedy? The laborers employed by the fumigating companies are notoriously careless of the property on which they are working and I judge that very few of them would lift a hand in order to save the life of a bird. It

would be a decided help if we could have a law that would impose a slight fine on the fumigator for every bird so killed,—merely a nominal sum, say five cents a bird. This would be sufficient to make the workmen swing a lantern in among the foliage and shake the tree gently in order to scare out the feathered lodgers. In order to obtain results, it would of course be necessary for a warden to make occasional and unexpected visits to the orange groves during the fall of the year.

*Covina, California, January 17, 1914.*

## AN ASIONINE RUSE

By WILLIAM LEON DAWSON

**I**N her excellent article, "With Asio in the Greenwood", in a recent number of *Bird-Lore*, Florence Merriam Bailey describes the behavior of a Long-eared Owl which she had been watching closely for some time in the vicinity of its nest. The old Owl stood guard so quietly one afternoon that she seemed on the point of going to sleep. "The next moment", Mrs. Bailey records, "to my great astonishment, she darted to the ground as swiftly as a Kingfisher dives for a fish he has been carefully locating from above. A shriek—and then a silence! Up she flew surrounded by a noisy mob of Bronzed Grackles, three Orioles and a Blue Jay. When the excitement had subsided a little the Blue Jay flew off with a sad reflective cry", due to the proximity of her own brood. "And yet", concludes Mrs. Bailey, "the victim was probably a wood mouse, or some such small vermin".

This episode reminds the writer of an experience enjoyed by him while in camp on the banks of the Walla Walla River in Washington—May 3rd, 1907, it was—and a recital of the circumstances may possibly, although not certainly, throw some light on the identity of Mrs. Bailey's "mouse". I was seated at a height of twelve or fifteen feet from the ground in a willow tree beside a nest of young Long-eared Owls,—one of a line of four nests which I had been watching for several days. The youngsters were "freezing" faithfully, as usual, all except the runt, which still favored the cowering pose. The male parent had delivered himself of a series of quaint execrations, "*Morach moraaaouwe, werck werck wraaouwe; werck wraaa*", and had quitted the scene in disgust.

The female had caterwauled and cajoled and exploded and entreated by turns, all in vain. Matters seemed to have reached an *impasse*, and silence had fallen over the landscape. I had time to note the sage-pinks bright with morning dew, and the subtle, soothing gray-greens of the sage itself, as it rose in billows over the slopes of the closely-investing hills. All of a sudden the Owl left her perch, flew to some distance, and pounced upon the ground, where she could not well be seen through the intervening foliage. Upon the instant of the pounce arose the piercing cries of a creature in distress, and I, supposing that the bird, in anger, had fallen upon a harmless Flicker, which I knew dwelt in that neck of the woods, scrambled down instantaneously and hurried forward. The prompt binoculars revealed neither Flicker nor mouse. There was nothing whatever in the Owl's talons. The victor and the victim were one and the same, and I was the dupé. Yet so completely was the *play* carried out that the bird fluttered her wings and trod vigorously with a rocking motion, as though sinking her talons deeply into a victim. I was astonished. Nor should I believe the evidence of my eyes to this day if I had not witnessed the same play repeatedly thereafter. The Owl

thought she had me going, and I humored her to the point of absolute personal satisfaction. There was never trace of fur or feathers or gore on the deserted stage. The distress cries, always convincing, were never overdone, but ceased, as they should, after the first onslaught; yet if I did not yield a prompt obedience to the lure, the Owl looked about reproachfully, and then redoubled her demonstrative wrestle with her alleged quarry. It was noteworthy in this connection that while other birds usually paid little heed to the notes of this Owl, however terrifying in volume or tone, this distress cry commanded instant attention throughout the woods. The small birds began to chatter sympathetically, while Crows and Magpies rallied as though at the blast of a bugle. In fact, some nimble Magpie, as often as not, interrupted the play before it was half finished. This was the clew, if clew were needed, to the explanation. Your humble servant was a big Magpie, who at the sound of conflict might be expected to rush forward and snatch the prize from the victor's grasp. Clever, wasn't it! And, parenthetically, your Magpie is evidently exactly up to that game, even if the stupid man failed to play to his lead.

The illusion of this decoy ruse (whose further psychology I leave who will to explicate) was most complete; and even inside knowledge of the facts could not lessen the wonder how this Owl could so perfectly reproduce the shrieks of former victims.

Possibly,—though the writer suggests this in all modesty, not knowing the full circumstances attendant upon the other episode,—possibly, Mrs. Bailey's Owl also carried her wood mouse in her throat.

*Santa Barbara, California, January 8, 1914.*

## SOME DISCOVERIES IN THE FOREST AT FYFFE

By MILTON S. RAY

WITH EIGHT PHOTOS BY THE AUTHOR

AS PLANS for a sea-island trip allowed but a very short and early visit to Sierran territory this year (1913), I selected Fyffe, at an elevation of 3700 feet in El Dorado County, in preference to points of higher altitudes. Fyffe has become rather famous, ornithologically, from the work of Barlow, Carriger, Welch and others, and in fact in this respect it is one of the best known sections of the great Sierran chain. While the fact of the region having been so well worked rather suggested the advisability of going to less known localities, I relied on the chance that here, no doubt, as elsewhere in the Sierras, the bird-life would be found varying from year to year in both abundance and variety; and owing, too, to the fact that each worker afield possesses methods peculiarly his own, that one might still be able, perhaps, to add something new to the region's fund of accumulated bird-knowledge. Besides this, too, I was desirous of treading in reality those well worn paths of fellow workers, that I had already followed on printed page and in tantalizing photograph. My previous acquaintance with Fyffe was limited to glimpses of the region while passing en route to Lake Tahoe, and to a few hours afield on June 2, 1901. On this occasion, while about all I located was a nest with four eggs of the Western Tanager (*Piranga ludoviciana*) fifty feet up in a lofty pine, nevertheless I gained an insight into the

possibilities of the region; for the few hours afield showed a wealth and variety of bird-life that few sections of the great woodland can equal.

If I lacked personal familiarity with the region and its bird-life, I was fully acquainted with the work that had been done by others. Besides Barlow's famous paper, "The Birds of the Placerville-Lake Tahoe Stage Road", I had carefully perused all other available bird literature on the region, and through the kindness of Mr. Henry W. Carriger I had also the opportunity of studying the daily field notes of Pemberton and Carriger covering a considerable period. A decided disappointment, however, was Carriger's parting injunction as I left San Francisco on May 12: "You're too early. Ray, I think, for nests of the Hermit Warbler. I wouldn't advise spending much time in search of them"; for I frankly admit the quest of avian rarities has always held for me a peculiar attraction.

It is a rather long trip to Placerville, and I had ample time to read and re-read Fyffe bird literature on the way. In glad surprise I stumbled upon this note on the Hermit Warbler, previously overlooked in Barlow's paper: "A nest containing young about four days old . . . at Fyffe on June 11, 1897", and I saw a chance existed, although rather remote, that after all I might still be in proper season to find a nest of that famous *rara avis* of Fyffian woodlands.

The train had now left the Sacramento Valley far to the west and by a tortuous route was toiling slowly through the winding canyons of the foothills. On gaining a sparsely wooded summit we were afforded a rare view of the distant and heavily timbered Sierran ranges, with Pyramid and other dazzling, snow-covered peaks towering in the back-ground.

Placerville was reached in the afternoon, but old friends luring me to a hammock swung in the shade of cherry trees, the bird-life out in the hot sun on the adjacent hillsides was left unmolested and unchronicled. Early next morning, however, bird-song and balmy air without, had me abroad at four o'clock, and before the stage left at 6:45 A. M. I had time to venture some distance out of the town itself, to cross a number of grassy fields, wet with dew, to ford a small stream and reach a group of scattered oaks, and later a thicket of pines on a steep hillside. Altogether, I noted fifteen different species; among them and exceeding all others in interest and rarity was a flock of ten Cedar Waxwings (*Bombicilla cedrorum*) in a line of thorny roadside trees.

While waiting for the stage I noted the old-time colony of Western Martins (*Progne subis hesperia*) circling about the eaves of the Cary House, or sweeping through the village streets melodiously twittering, just as I have seen them in numerous seasons before, just as Barlow, with graphic pen, describes them, and, perhaps, just as they did in the golden days of '49 when this little mountain town was the cynosure of all eyes.

By one day I had missed the through stage, which goes at this season as far as Echo, at the base of the main Sierran summit; but I was enabled by another line to go on to Camino from where, leaving my equipment to be forwarded, I walked on leisurely to Fyffe. Arriving at 10:15 A. M., I registered at that famous hostelry of Welch's "Sierran Echoes", Sportsman's Hall; and, as it was still some time until noon, I had opportunity before lunch to take a short walk in the immediate vicinity. A Western Lark Sparrow (*Chondestes grammacus strigatus*) flushed from her nest in an apple tree, and disclosing three scrawly-marked eggs, led off the season's tale, while near at hand was a newly built nest of the Western Chipping Sparrow (*Spizella socialis arizonae*), and one of the Western Robin (*Planesticus migratorius propinquus*) with three eggs. Homely finds, rather savoring of youthful experiences, yet still of value as indicative of

seasonal conditions. At a forest edge a Red-breasted Nuthatch (*Sitta canadensis*) was noted drilling well up in a lofty dead tree trunk, while a Spurred Towhee (*Pipilo maculatus megalonyx*) fluttered off from an unfindable nest in a patch of mountain misery, that softest and greenest of all Sierran carpets.

It was not my original intention in the afternoon, in a sort of preliminary survey, to climb in traveling clothes the pitchy pines or charred dead tree trunks, but the ornithological temptations proved stronger than my resolutions. Edging on the road I noted four rich buffy eggs of the Mountain Partridge (*Oreortyx*



Fig. 25. IN THE FOREST AT FYFFE. THIS RATHER OPEN VIEW WAS POSSIBLE ONLY BECAUSE OF THE CLEARING ALONG THE DITCH; ELSEWHERE THE FOREST WAS GENERALLY SO DENSE AS TO PRECLUDE PHOTOGRAPHY. ON MAY 20 A NEST OF THE SIERRA JUNCO WAS LOCATED CLOSE TO THE LOG SPANNING THE STREAM.

*picta plumifera*) lying in a grass and leaf-lined hollow which a dead pine branch and surrounding weeds partially concealed. As I headed northeast into the great forest the rich melody of Thick-billed Sparrows (*Passerella iliaca megarhyncha*) came floating from the brush-covered clearings, while from all sides came a maze of warbler songs, incessant, varied and low.

I had now gone a number of miles, and had visited, though without result, several particular points mapped and described with great care by Carriger. The

nesting site of a Northern Pileated Woodpecker (*Ceophloeus pileatus abieticola*), in a lofty naked tree trunk, was found deserted; cobwebs covered the former nesting holes of White-headed Woodpeckers (*Xenopicus albolarvatus*) in a much-chopped dead tree; and the Townsend Solitaires (*Myadestes townsendi*) had wilfully departed from the region that Carriger had specifically assigned to them. Although bird-life was abundant, I soon learned that nests of any sort were difficult to find, owing to the density of the foliage. Even when located they were often next to impossible to reach, for here the pines, firs and cedars spear cloudward to such heights that one gazes up at them in wonder, like Gulliver in the gigantic woods of Brobdingnag.

At various times could be heard the rare song of the Sierra Hermit Thrush (*Hylocichla guttata sequoiensis*) which, strangely enough, while previously unrecorded here, I found quite abundant. A Western Tanager was noted nest-building in a tall conifer, and both purple finches, Cassin and California (*Carduelis cassinii* and *C. purpureus californicus*), were in evidence, and singing, I thought, distinctive songs. Some days later I noted the third member of the group (*C. mexicanus frontalis*), so this genus is well represented here. Of ground-loving birds the Spurred Towhee was by far the most common, with the Sierra Junco (*Junco hyemalis thurberi*) a poor second, for it is only in the higher altitudes that the latter is found in such great numbers.

While breaking my way through dense undergrowth, the wild cries of a pair of hawks as they swept through and above the timber attracted my attention. Their conspicuously white underparts proclaimed them American Ospreys (*Pandion carolinensis*), and while they seemed strangely out of place so far inland, I remembered that Barlow had previously recorded them from a point not far from here on the American River. I was now on the floor of a wide canyon to which the wooded mountains on both sides gradually sloped, while above, the leafy pavilions towered so close and high that only glimpses of the surrounding country could be had, with but small patches of sky above. On working up the south slope the Ospreys became still more wildly excited, but as they remained in the air continuously I was unable to learn the cause of their extreme displeasure. Several likely-looking, bulky affairs of sticks and twigs burdened lofty boughs above, but feeling unable to accomplish anything in Raptorian collecting here without equipment (or perhaps even with it!), and as it was, too, nearly dusk I was about to start back to the "Hall" when a small warbler, by its continued presence in the immediate vicinity arrested my attention.

The individual, which looked dangerously (and gloriously!) like a female Hermit Warbler, remained about twenty-five feet up, and although it flitted from bough to bough and branch to branch, it never wandered far away. To untrained eyes it would have appeared unconcerned, but to another than a novice its actions were decidedly suspicious, and called for narrow and patient watching. After a time, however, the bird disappeared, but a slow, laborious, and careful search revealed a small warbler-like nest woven to a slender, overhanging yew branch fourteen and a half feet up. On reaching a point above the nest I was able to see it held a complement of five eggs, but as my bird had not returned, and as it was almost dark, I decided to postpone further investigation until the next morning.

When I reached the locality early in the forenoon of the next day (May 14), the noisy pair of Ospreys were nowhere in sight. A sitting bird slid off as I approached the warbler nest, and lit on a branch close-by. To me it was an anxious moment, but my guess of the day before proved correct. The bird, a fe-

male, was none other than the rarest of all Sierran Mniotiltidae, the Hermit Warbler (*Dendroica occidentalis*), whose eggs remained so long undescribed, and whose recorded nests, even at the present time, can easily be counted on the fingers of two hands.

The nest was saddled halfway out on a slender yew branch fourteen and a half feet up. From the nature of the foliage the situation was somewhat open, but partial concealment was given by branches above and below. The tree itself was one of wide spreading branches, about thirty feet in height, and standing in the almost perpetual shade of the lofty firs and cedars, which in endless numbers cover the gradual slope of the canyon's southern wall. Dark and damp.



Fig. 26. THE MAZE OF FOLIAGE WHERE THE NEST OF THE HERMIT WARBLER WAS FOUND. THE NEST IS SITUATED IN THE CENTER OF THE PICTURE BUT IS TOO SMALL TO DISTINGUISH READILY.

with the ground littered with dead brush and decaying vegetation, the locality was hardly the place where one would expect to find the sun-loving Hermit Warbler nesting. Usually the bird frequents the edges of clearings with other feathered sun-worshippers; and Carriger informs me the nests recorded from Fyffe were in, or not far distant from, such localities.

The nest itself very closely resembles those recorded by Barlow, except that the inner lining, instead of projecting, is woven into the rim. It is round in shape, compactly built, and a little wider and more shallow than the nests of most other species of the genus *Dendroica*. It measures  $3\frac{1}{4}$  inches across over

all, by  $1\frac{7}{8}$  inches deep, with a cavity  $2\frac{1}{4}$  inches in diameter, by  $1\frac{1}{2}$  inches in depth. A rather pretty affair, made outwardly in part of brownish rootlets and a few pine needles, both of which strikingly contrast with the bleached bark strips and light-colored vegetable fibers which are also used. Strips of red cedar bark, horsehair, with here and there a scattered feather, form the lining. The five eggs, fortunately fresh, measure in inches: .66x.49, .67x.48, .67x.50, .67x.50, .69x.49. They are ovate in shape and have a very faintly tinged white ground color. The markings consist of well defined spots and blotches, which predominate around the larger end, where they form rough wreaths, and in color vary from mars brown to burnt umber, and, in a few places, even black. Equally as well distributed are the washy blotches of light violet-gray. This description is based on a comparison with the plates in "Color Standards and Color Nomenclature", by Robert Ridgway, 1912 edition.

While I remained in the vicinity the female flitted anxiously about, much as a Yellow Warbler would do; but although I waited patiently for hours, the male did not appear. It was almost noon before I completed my work at the nesting tree, and with notes, specimens and photos tramped triumphantly back to Fyffe, for although I had succeeded in locating a nest of the Hermit Warbler on my first day, it must not be thought I underestimated their extreme rarity. I may add that during my stay of ten days, in which I covered over one hundred miles afield, not only were no further nests located, but the birds themselves proved extremely scarce. Though countless scores of various other warblers were noted, but a very few birds that appeared referable to this species were seen, and these being well up in conifers, could not be positively identified.

In the afternoon, in the burnt district east of Fyffe, I noted a nest of the Western Bluebird (*Sialia mexicana occidentalis*) in a cavity of a pine stump ten and a half feet up. The nest was noteworthy in that it formed part of a nest of small black ants, which gained entrance through crevices below. The ever wandering hordes and countless numbers of their eggs were amid the material of the bluebird's nest. The latter, made of grasses and lined with bark strips, held three fresh eggs. On May 15 these were increased to four and on the 18th I noted five, slightly incubated. Nearby, a White-headed Woodpecker was flushed from a nesting hole seven feet up in a burnt stub, containing four badly incubated eggs. A week later the nest held three young and an infertile egg. Close to this nest was also one of the Cabanis Woodpecker (*Dryobates villosus hyloscopus*), with four small young, fifteen feet up in a slender dead tree.

On taking a road that led in the direction of Webber Creek I came upon a large rattler stretched full-length across the road, with a mouse in its mouth. The reptile, which boasted eight rattles, quickly coiled and showed fight. Although it was promptly dispatched, the incident caused me for some little time afterward instinctively to tread very gingerly through the brush-covered rocky tracts. Later, along the main road half a mile west of the "Hall", the nest of a new breeding bird for Fyffe was found, that of a Sierra Hermit Thrush. This was openly placed three feet up in the crotch of a small dead tree, which afforded but scant concealment. The nest, of grasses, stems, leaves and bark strips, lined with fine rootlets and grasses, held a single fresh egg. Later visits showed as follows: May 15, two eggs; 16th, three eggs; 17th, four eggs; 18th, four eggs, with bird sitting closely.

For a second time at dusk a puzzling nest was located. This was at the very end of a pine bough, thirty feet up; from the nest a bird took wing and disappeared before I had opportunity to identify it. The nest I could see, from above,

held two eggs, and while I was unable to reach it I felt quite sure of being able to do so next day with proper equipment.

With a long rope swung from a bough above I succeeded in getting within a few feet of my unknown nest next morning (May 15), but closer proximity to the eggs, which now numbered three, was unnecessary. The owner lit close by and proved to be that most common bird of these altitudes, the Western Chipping Sparrow, which usually, however, nests in very low situations. Chester Barlow and other writers relate, too, how they have had similar and rather laughable experiences endeavoring to reach nests, almost inaccessible and of apparent rarity, which afterwards turned out to be of this exceedingly common species.

Most of the day was spent in Webber Canyon, where a number of Western



Fig. 27. NEST AND EGGS OF THE HERMIT WARBLER, THE RAREST OF THE SIERRAN WARBLERS. THIS NEST WAS SITUATED IN A YEW GROWING IN THE DENSE FOREST NORTH OF FYFFE. THE SET SHOWN IS THE FIRST TO BE FOUND CONTAINING FIVE EGGS.

Winter Wrens (*Nannus hiemalis pacificus*) were noted. Two Band-tailed Pigeons (*Columba fasciata*), flying high in an easterly direction, were also seen. Two nests of the Black-headed Grosbeak (*Zamelodia melanocephala capitalis*), a bird which is very abundant here, were also noted, one with three fresh eggs and one building. Along the south bank of Webber Creek, six and a half feet up in a small cedar that was half hidden amid a number of clumpy-foliaged pine saplings, I came across a nest of the Blue-fronted Jay (*Cyanocitta stelleri frontalis*). The sitting bird quietly slid off the nest, a bulky affair of coarse twigs, pine-needle lined, disclosing four eggs, very slightly incubated. The parent showed the characteristic wariness of the species, for although I waited three-quarters of an hour, she did not return, nor did I hear the distinctive call-note within the nesting pre-

cinets. Seven feet up in a small pine nearby I found another nest of this jay, apparently one of the previous season.

Most of May 16 was spent in canyons north of Fyffe. Leaving the latter place, which by the way is not a hamlet but merely a hotel and postoffice, I came upon my first pair of Mountain Chickadees (*Penthestes gambeli*). Judging from the records of previous workers, these birds were unusually rare here the present season. Several times during the day I noted California Woodpeckers (*Melanerpes formicivorus bairdi*) as not uncommon, although Barlow does not record them for Fyffe. Two days before, I observed a pair of Red-breasted Sapsuckers (*Sphyrapicus varius ruber*) hollowing out a home in a lofty dead branch overhanging a ditch. Passing the spot now I found them still engaged in the work. While not rare anywhere I found Western Wood Pewees (*Myio-*



Fig. 28. NEST OF THE SIERRA HERMIT THRUSH, THE FIRST TO BE RECORDED FROM THE VICINITY OF FYFFE. NOTE THE LACK OF CONCEALMENT, A COMMON FEATURE OF THIS BIRD'S NESTING.

*chanes richardsoni richardsoni*) particularly abundant in a tract that forest fires had swept, leaving only charred tree trunks standing in dense undergrowth.

Though I saw in all about a dozen birds during my stay, it was here, near Blair's Old Mill, that I saw my first Northern Pileated Woodpecker at close range. Approaching the small stream that courses through the canyon, I heard a loud hammering in the distance, so loud that the whole ravine resounded with the echo, and which I took to be from men at work on some fence or bridge. As I neared the spot from which the sound came I was surprised to come upon two of these immense woodpeckers, of jet plumage and flaming crest, without doubt among the most remarkable and interesting of all Sierran aves. The two birds were to all appearances on a foraging expedition, and unseen I watched them for

a considerable time. After prospecting one dead tree they would alight at the foot of another and work upward. Flying thus from tree to tree, with a rather crow-like flight, they gradually disappeared from view down the canyon.

Nearing Fyffe, along the irrigation stream, a rather favorite haunt of bird-life, I found two nests. The first, one of the Sierra Junco, held four fairly well incubated eggs, and was made of rootlets, moss and grasses, and lined with wild animal hair. It was entirely concealed by the overhanging foliage of a small cedar and alder. The second nest, one of the Spurred Towhee, held four fresh eggs, and was completely concealed amid mountain misery and dead brakes. It was composed of bark strips, grasses, stems, leaves and brake, and lined with fine grasses.

Towards evening, in company with a friend who kindly volunteered to aid me in searching a wide patch of mountain misery for a nest of the Calaveras Warbler (*Vermivora ruficapilla gutturalis*), now my particular desideratum, I journeyed down Webber Canyon about a mile southwest of Fyffe. While rounding a rather open hillside covered with mountain misery, I spied a tell-tale feather adhering to the edge of a cavity-entrance in a dead tree-trunk fourteen feet up. I thought it probably the home of some bluebird or chickadee, and my surprise can well be imagined when inspection showed it to contain a brood of Saw-Whet Owls (*Cryptoglaux acadica acadica*) whose breeding here was not only a record for Fyffe, but for California. As it was now almost nightfall I postponed further investigation until I would have opportunity, with returning daylight, to make use of the camera.

The weather, which had been sunny and pleasant since my arrival, turned cloudy next day (May 17), and for a time a mist-like rain fell. While en route to the owl's nest I noticed a flock of eleven Band-tailed Pigeons in a thick grove of lofty pines. Farther on I met with a pair of Blue-fronted Jays, whose nest eight feet up in a manzanita, on a steep hillside, proved to be just completed. Although I did not approach within several feet of this nest, the birds abandoned it, for on revisiting the tree on May 20, I found it had been deserted.

Chopping out the Saw-Whet Owl's nest revealed five almost full-fledged young and a freshly killed mouse. The cavity was fourteen feet from the ground, and the entrance so small that it seemed the parent birds could have gained admittance only with difficulty. Offering little resistance beyond clicking their bills, the five diminutive owlets were carried nearly a mile before I found a suitable place wherein to photograph them. Never have I met with more willing subjects; for although they could fly a short distance, they made no attempt to escape but sat wondrous wise, staring out across the wide expanse of Webber Canyon. Besides taking the group, one of the birds, apparently the oldest, and there was considerable difference in this respect, was photographed perched on a near-by stump. The breeding of this owl here being a state record, I deemed it advisable to send one of the birds to Mr. Joseph Grinnell at the University of California (now no. 23463, Museum of Vertebrate Zoology), while another I kept in captivity and brought back with me to San Francisco. This bird was about the most interesting pet I ever possessed. It would perch contentedly for a half hour or more at a time on one's shoulder or finger or upon some point of vantage, apparently wisely conscious of all that was transpiring around it. The bird had a curious habit of bobbing its head rapidly up and down, in addition to the usual movement sideways. Only at night did I hear the curious, wild, and rather grating cry, for during the day the bird was silent save for clicking its bill off and on like a pair of castanets. In all, it was about the dearest little pet I ever owned

and I felt the loss keenly when it died shortly after my return home. This specimen was given to the California Academy of Sciences. At no time on the several visits I made to the nest of the Saw-Whet Owls were the parent birds seen, although on several occasions I waited patiently for them to appear.

While returning to Fyffe, after my work at the owl nest, I noted an *Empidonax*, either *hammondi* or *wrighti*, a Cassin Vireo (*Lanivirco solitarius cassini*), which was engaged in nest building, and a Red-breasted Nuthatch drilling in a lofty and practically inaccessible nesting site.

It rained hard during the night, and continued intermittently the next day (May 18), making the woods so wet that field work was not only unpleasant but



Fig. 29. NESTING SITE OF THE SAW-WHET OWL ON A RATHER OPEN HILL SLOPE IN WEBBER CANYON, SOUTHWEST OF FYFFE. THE CAVITY OCCUPIED WAS FOURTEEN FEET ABOVE THE GROUND IN THE LARGE STUB IN CENTER OF PICTURE. "MOUNTAIN MISERY" CARPETS THE FOREGROUND.

dangerous, on account of the slippery condition of the tree trunks. After covering several miles through the dripping forest I confined my work to the more open hillsides and to those sections that edged along the high road. Among the bird-homes found during the day, two were curiously an exact repetition of what I had found two days previously. The first, one of the Sierra Junco, held four eggs well along in incubation, and was hidden under a fallen pine log on the edge of a corral. It was made of stems, and lined with fine light-colored grasses and animal hair. The second nest, as before, was a Spurred Towhee's, and was hidden in mountain misery along the irrigation ditch. The bird was flushed from its nest of stems and grasses, lined with fine grasses, disclosing four fresh eggs.

Later, near the State Road, I stole up on a Red-breasted Nuthatch that was industriously hewing out its modest dwelling in a very slender dead tree-trunk only six feet up. In fact this trunk was so narrow in diameter that I drilled a small hole into the nesting cavity from the opposite side of the trunk, and on later visits, by taking out a close fitting plug, I was able to see just what progress was being made. The nest was about completed the day before I left.

The most agreeable surprise of the day was finding a nest of the Audubon Warbler (*Dendroica auduboni auduboni*) with two fresh eggs, in an apple tree eight feet up and close to the hotel. On May 21 this held four typical eggs, they being heavily and richly marked. In fact I believe the eggs of no other Californian warbler can show coloring as rich or markings as varied and heavy as those of this species. The nest was of rootlets, string (an indication of its nearness to the habitations of man), bark strips, and plant fibers, and was profusely lined



Fig. 30. YOUNG SAW-WHET OWLS FOUND MAY 20, 1913, IN WEBBER CANYON NEAR FYFFE. THIS CONSTITUTES THE FIRST DEFINITE BREEDING RECORD FOR THIS OWL IN CALIFORNIA.

with feathers and horsehair.

The weather became clear and pleasant again next morning (May 19), and I decided on Webber Canyon for my day's ramble. While not as heavily timbered as the canyons north and east of Fyffe, it nevertheless supports a wider variety of bird-life, owing to the diversified character of the country. In addition to the predominant coniferous woods there are also vast forests of oak, brush-covered rocky tracts, open fields and, to me not the least important, the wide patches of mountain misery, where I continued my long, and so far unsuccessful, search for a nest of the Calaveras Warbler.

Four feet up in a cedar I found a deserted nest of the Black-throated Gray Warbler (*Dendroica nigrescens*) with a single fresh egg. A White-crowned Sparrow (*Zonotrichia leucophrys leucophrys*), evidently a straggler, was noted in a patch of deer brush, and a Red-breasted Nuthatch was seen nest-excavating

twenty feet up; but the triumph of the day's work was the finding of a Thick-billed Sparrow's nest with four partly incubated eggs. Locating nests of this bird is without a doubt one of the most difficult problems presented to the field worker at Fyffe. Barlow relates how his long search was unrewarded, and I deemed myself quite fortunate in finding one. While working through a patch of very thick brush I came upon the sparrow on her nest. The bird rose reluctantly, flew a short distance but soon returned, and became very solicitous for the safety of her abode and its contents. I have watched Thick-billed Sparrows hour after hour, endeavoring to gain some clue to the location of a hidden nest, and yet the birds would continue unconcernedly feeding or singing or idling their time away, apparently unconscious that such a thing as a nest existed. But now what a difference when the nest was located! Oh, you wise Thick-bills! The



Fig. 31. "TOMMY", THE OLDEST OF THE FIVE SAW-WHET OWLS. THIS INDIVIDUAL WAS KEPT CAPTIVE, BUT LIVED ONLY A SHORT TIME AFTER ITS REMOVAL TO SAN FRANCISCO. IT PROVED ITSELF A GENTLE AND PLAYFUL PET.

nest, of coarse twigs lined with fine bark strips and fibers, was placed three feet up in a tangle of cedar and fir saplings, on a dead bare branch that lay across them and adjacent deer brush. The eggs well exhibit that wide diversity of coloration which prevails in the eggs of this species, for not only are they entirely different from three other sets I have from higher altitudes, but two of them show striking individual variation.

Principally to obtain an index to conditions, I climbed to a nest of the Red-shafted Flicker (*Colaptes cafer collaris*), twenty feet up in a dead black oak on a hillside. The bird flushed, but re-entered the cavity while I was ascending the tree. I had no climbers and twice I slid back down the limbless trunk, but on the third attempt I succeeded in reaching a solitary limb that hospitably gave me foothold. In the cavity, on a bed of wood chips, lay six eggs whose glossy, semi-

transparent shells showed traces of incubation, slight in four and well-marked in two. No other new nests were found during the day except those of the ever abundant Western Robin, Black-headed Grosbeak and Western Chipping Sparrow.

Photography took up most of the following day (May 20). While engaged in this work along the ditch, I located a nest of the Sierra Junco close to where a fallen log crosses the stream (see fig. 25). The nest held four well-incubated eggs; well hidden in mountain misery just above the flowing water, it was only found by watching the birds from the opposite bank. The nest is rather unusual, being made almost entirely of cedar bark, in addition to which are some few weed stems and a lining of fine grasses and animal hair. While using the camera later in Webber Canyon, I spied a Western Yellow Warbler (*Dendroica*



Fig. 32 NEST OF THE THICK-BILLED FOX SPARROW. IT WAS LOCATED IN AN ALMOST IMPENETRABLE THICKET AND HELD FOUR EGGS. NESTS OF THIS BIRD HAVE PROVEN EXTREMELY DIFFICULT TO FIND ALTHOUGH THE BIRDS THEMSELVES ARE COMMON IN APPROPRIATE LOCALITIES.

*aestiva brewsteri*) weaving its light-colored, hempen, cup-like nest in a small sapling.

On May 21 I ran across a very puzzling set of eggs. The nest, three feet up in deer brush, was in every respect a typical one of the Western Chipping Sparrow, being composed of rootlets and grasses and lined with horsehair. The four eggs it held, however, were short ovate in shape and unspotted, pale bluish-green in color. I hastily concealed myself some distance off to watch, if need be, the whole afternoon for the owner of these most remarkable looking specimens. The parent was fashionably late in appearing, and when she did so I learned the eggs were simply a unique set of that ever-present species, the Western Chipping Sparrow. On close examination I could just discern on one of the eggs some dim

pin-point dots of reddish at the larger end. The set was very tender shelled, and was prepared for the cabinet with considerable difficulty.

During the day I noted a pair of Slender-billed Nuthatches (*Sitta carolinensis aculeata*), which Barlow has not recorded, and also my first Turkey Vulture (*Cathartes aura septentrionalis*). This, however, Barlow has listed as not uncommon. In deer brush eight feet up, I found a nest of the California Bush-tit (*Psaltiriparus minimus californicus*), with eight well-incubated eggs.

Some distance away I flushed a Calaveras Warbler (*Vermivora ruficapilla gutturalis*), but on reaching the spot, after a careful search, I was unable to locate any nest. When almost half an hour had elapsed the bird returned, and after many roundabout flights, finally flew to, and disappeared in, a thick patch of weeds. Advancing very slowly, I succeeded in flushing the bird almost at my feet, from a nest that was placed at the foot of a small deer-brush shrub and completely arched over by pine needles. The nest held five eggs in an advanced stage of incubation, and was made outwardly and almost entirely of cedar bark, mixed with a few pine needles and with a lining of fine rootlets, fine wire-like grasses and hair. It is worthy of note that it contains no soap-root fibre, which Barlow mentions as being usually the principal material.

Next day, May 22, I found but one nest of particular interest, beside the usual number of common ones. This, a Thick-billed Sparrow's, was three feet up in deer brush, newly completed, made of twigs and rootlets, and lined with bark strips. Towards evening I flushed a Tolmie Warbler (*Oporornis tolmiei*) from an extensive patch of brush, but it grew dark before I could locate the nest.

The following morning, May 23, I excavated, near the hotel, a nest of the Red-breasted Nuthatch that I had noted the birds drilling on May 13. Now, though ten days had passed, it contained no eggs, although the nest proper was completed. The call of this bird resembles nothing so much as that to which Mr. J. R. Pemberton has compared it, those little toy Christmas horns or bugles the note of which is not over loud and rather mellow. The bird's call note is almost identical with this, and the striking similarity serves to readily identify it.

My short stay had now drawn to a close, and it was very reluctantly that I packed for departure, for never had Fyffe, this outpost on the frontier of the great Sierran forest, appeared more fair. May streams wandered through banks of wild flowers and grass-carpeted woods, where dog-wood trees with their profusion of snowy-petaled blossoms were everywhere conspicuous amid the giant pines, firs and cedars. And, too, unlike the oppressive warmth of late June or July, the weather now was cool and pleasant.

Nor was it Fyffe alone that I regretted leaving, for to the east lay a region that offered even greater temptation. Every day now automobile parties, campers or trampers were heading along this famous pioneer road to higher altitudes, to Slippery Ford, Echo, Summit and Lake Tahoe. Resort keepers, or cattlemen with their herds, went by, old time friends among them who offered the use of saddle-horse or a seat in some slow-moving caravan to make the journey eastward; but unfortunately my way lay in the opposite direction. Near was it long before my conveyance rolled up to the door. Grips aboard, a few hasty farewells given, and we were soon bowling along the park-like road to Placerville.

*San Francisco, California, December 12, 1913.*

## BIRDS OF SITKA AND VICINITY, SOUTHEASTERN ALASKA

By GEORGE WILLET

WITH ONE PHOTO BY E. W. MERRILL

DURING the summers of 1912 and 1913, which the writer spent in the neighborhood of Sitka, Alaska, in the interests of the Bureau of Biological Survey, much time was devoted to the general ornithology of this most interesting section. All the writer's personal notes on this district were made between July 14 and September 2, 1912, and between July 20 and October 3, 1913.

Some of this time was spent in the immediate vicinity of Sitka, and frequent visits were made to Kruzof, St. Lazaria and Biorka islands, as well as to many of the smaller islands in Sitka Sound. I also traversed rather thoroughly several of the more important ranges on Baranof Island, and three times climbed Mt. Edgecumbe, an extinct volcano and the highest peak on Kruzof Island. Finally, through the courtesy of U. S. Forest Ranger George Peterson, I made a trip on the Forest Service launch through Peril Straits to Hooniah Sound and Tenakee Inlet, Chichagof Island, down the east side of Baranof Island as far as Patterson Bay, and across Chatham Straits to the western shores of Kuiu and Admiralty islands. Landings were made many times during this trip and I was enabled to make investigations of the bird-life in these localities.

My trips around Sitka Sound were generally made in a row boat which was furnished me through the kindness of Mr. Arthur Shoup, Representative to the Territorial Legislature. The trips into the mountains were made on foot and my camp outfit, guns, ammunition, etc., were carried on my back.

On some occasions I travelled alone, but I was several times accompanied by Mr. E. W. Merrill of Sitka, by Mr. Robert Bardon of Grant's Pass, Oregon, and by Forest Ranger Peterson. To each of these three gentlemen I am indebted for much assistance rendered and information given. Mr. Merrill, who is a fellow member of the Cooper Club, has resided in Sitka for over ten years, during which time he has taken a number of valuable specimens, and made many interesting notes on the birds of the region. He very kindly turned over to me all his notes, and the information obtained therefrom has added materially to this paper. I also received many courtesies and much valuable information from Deputy United States Marshals John Goodell and James Brightman, and am indebted to Mr. A. J. Wilkus, formerly in charge of the government experimental station at Sitka, for several specimens of raptorial birds secured by him in the neighborhood of his chicken yard.

For assistance in ascertaining the identity of specimens, obtaining previously published literature, and in looking up old records, I am greatly obligated to Mr. Joseph Grinnell, of the University of California Museum of Vertebrate Zoology, Mr. H. S. Swarth, of the Los Angeles County Museum of History, Science and Art, Prof. Wells W. Cooke, of the United States Biological Survey, and Mr. W. Lee Chambers of Eagle Rock, California.

The territory herein referred to as Sitka and vicinity comprises Baranof, Kruzof and Chichagof islands with their outlying islets and contiguous waters. As is well known, this district is one of excessive moisture and luxuriant vegetation. On all of the islands, large and small, dense forests of spruce, hemlock and cedar extend down to the very edge of the water. Along the larger streams alders and willows are plentiful, and in many localities a dense undergrowth of

salmon-berries and devil-club, together with fallen logs, makes the woods almost impenetrable. On the slopes of the mountains some distance back from the water's edge are extensive open, boggy meadows covered with coarse grass and various kinds of berry bushes, and sparsely timbered with the squaw pine. Above timber-line, which is at about 2500 feet altitude, two species of heather flourish, furnishing food and protection to ptarmigan, pipits and Savannah sparrows. In walking through the forests, and swamps, and over the bare tops of the mountains, one who is familiar with the abundant bird-life of more favored sections of the United States, is at once struck by the extreme scarcity of bird-life. I once walked for four hours on the mountains of Chichagof Island without seeing a single bird. The only places where land birds are in any sense plentiful are around



Fig. 33. THE SUMMER HOME OF THE DIXON ROCK PTARMIGAN: GREAT EASTERN MOUNTAINS, BARANOF ISLAND, SOUTHEASTERN ALASKA. PHOTO TAKEN SEPTEMBER 25, 1911.

the edges of clearings, in the grass and underbrush bordering the beach, and along streams.

When, however, the ornithologist becomes weary looking for birds where there seemingly are no birds, he may turn his attention to the salt water and the ever interesting variety of water fowl to be found thereon. Gulls, auklets, murrelets, puffins, petrels and many other interesting groups are here in plenty, many species nesting on the outlying islands, others being migrants or stragglers. The most important breeding ground of the water fowl in the vicinity is St. Lazaria Island, a National Bird Reservation, about fifteen miles from Sitka and close to Kruzof Island. There are less important nesting colonies of water birds on the small islands off Biorka, and on Sea Lion Rocks west of Kruzof Island.

This section has many times in the past been visited by ornithologists, the

most noteworthy of these and the time of their visits being as follows: F. H. von Kittlitz, summer of 1827; Ferdinand Bischoff, 1865-66; Tarleton H. Bean, June, 1880; Joseph Grinnell and Joseph Mailliard, summer of 1896; Prof. W. T. Shaw, summer of 1906, and the Alexander Expedition to southeastern Alaska, summer of 1907. I have incorporated in this paper many items from the published notes of these observers, but have omitted a few early records which seem to me to be of doubtful authenticity.

With a few exceptions I have followed the nomenclature adopted by the A. O. U. Committee in the *Check-List* of 1910, and supplement to the same.

**Colymbus holboelli.** Holboell Grebe. Whether this species is a rare resident or only an occasional straggler in the Sitkan district, is a matter yet to be determined. I did not note it at all during 1912, but during 1913 saw it on Sitka Bay on three occasions, as follows: One bird near St. Lazaria Island, July 24; two birds near Sitka, August 14, and one bird at Silver Bay, September 21. The species was taken at Sitka by Bischoff during the Russo-American Telegraph Expedition (Dall & Bannister, 1869, p. 308).

**Gavia immer.** Common Loon. Noted frequently on salt water throughout the Sitkan district. Most plentiful after August 15.

**Gavia pacifica.** Pacific Loon. At no time during my stay was I able to positively identify this species. Loons, while plentiful, were invariably wild, and I was unable to approach close enough to distinguish the differences between this species and the next. Grinnell (1898, p. 124) records a specimen of the Pacific Loon taken at Sitka by Dr. Wilber, June 26, 1896. It is probably a regular migrant.

**Gavia stellata.** Red-throated Loon. Fairly common summer visitant on fresh water lakes. Plentiful on salt water during migrations. According to Merrill, a pair of these birds nest on Swan Lake, near Sitka, each year. They arrive about April 15, and the eggs are deposited about June 1. During my stay in Sitka, this pair had young on the lake, and they could be seen many times each day flying directly over the town to the salt water in search of food. Their loud quacking notes could often be heard before the birds were visible.

**Lunda cirrhata.** Tufted Puffin. Abundant resident. About two thousand pairs nesting on St. Lazaria Island. A few also nesting on small islets off Bioraka Island. Grinnell (1898, p. 124) noted fresh eggs in the former locality June 17, 1896. At the time of my visits to the nesting grounds in late July and August, the nesting cavities nearly all contained young.

**Fratercula corniculata.** Horned Puffin. About a dozen pairs of these puffins were nesting on St. Lazaria Island. The nest cavities were located in the most inaccessible cliffs on the island. Not noted elsewhere in the vicinity.

**Cerorhinca monocerata.** Rhinoceros Auklet. Fairly common on Sitka Bay throughout my stay. A colony of about two hundred pairs was nesting on St. Lazaria. The young were raised and the nesting colony deserted, however, before the time of my arrival on the island in late July. In one burrow an adult bird and a nearly grown young were found dead, the nest cavity having been caved in by a bear and the birds either crushed or smothered (Willett, 1912, p. 423). The burrows of these birds are entirely different in construction and location from those of any of the other birds nesting on the island. They are much larger than those of the petrels, and longer and differently located than those of the puffins. The colony is well up toward the top of the island among the timber, and the burrows frequently run under logs and among the roots of the trees.

**Phaleris psittacula.** Paroquet Auklet. I several times saw birds that I believed to be of this species among the islands in the bay, but was never able to approach within gun shot. Grinnell (1898, p. 124) records a specimen taken by Fred Froese near Sitka June 8, 1896, and, according to Finsch (1873, p. 82), a specimen from Sitka is in the Leyden Museum. This record is probably taken from Schlegel.

**Synthliboramphus antiquus.** Ancient Murrelet. Rather common on the more exposed bodies of salt water during my entire stay, and probably occurs throughout the year. Not so plentiful as the next species. On August 2, 1913, I found two broken eggs, apparently of this bird, in a burrow among the grass roots on a steep hillside on St. Lazaria Island. One of the eggs was in a fair state of preservation, but they were apparently at least a year old when found.

**Brachyramphus marmoratus.** Marbled Murrelet. Abundant on salt water throughout the district. The young were raised and on the water at the time of my arrival, and I was unable to secure any information as to the location of the nesting grounds.

**Brachyramphus brevirostris.** Kittlitz Murrelet. An adult bird secured at Biorka Island, July 24, 1912, was the only one noted.

**Cephus columba.** Pigeon Guillemot. Rather plentiful on salt water. Nesting in considerable numbers on St. Lazaria, and in smaller numbers on islands off Biorka.

**Uria troille californica.** California Murre. Common on salt water everywhere. The only nesting colony visited was in a large cave on St. Lazaria Island. This colony numbered about three hundred pairs. The young were nearly all hatched by August 15.

**Stercorarius parasiticus.** Parasitic Jaeger. Not noted at all during 1912, but during 1913 seen on Sitka Bay as follows: Two birds near St. Lazaria Island July 24, and one bird at Crab Bay, Kruzof Island, August 27. On September 9 the species was fairly common in Chatham Straits on the east side of Baranof Island.

**Rissa tridactyla pollicaris.** Pacific Kittiwake. According to Merrill, this bird occurs throughout the year in the vicinity of Sitka. It was very plentiful everywhere on salt water during the time I spent in the section. Although birds in adult plumage were common throughout the summer, no evidence of their nesting was found.

**Larus hyperboreus.** Glaucous Gull. Merrill secured an immature bird of this species at Sitka, November 3, 1908. I did not note it in this locality, but saw several birds along the mainland shore between Juneau and Petersburg, October 6-7, 1913.

**Larus glaucescens.** Glaucous-winged Gull. Abundant resident. According to Merrill, less plentiful in winter than in summer. I found this species nesting in considerable numbers on St. Lazaria and on small islands off Biorka.

**Larus argentatus.** Herring Gull. This gull was first noted at Sitka, October 2, 1913, several birds appearing in the harbor on that date. During the trip from Sitka to Seattle, October 2-10, these birds were abundant, and a large number followed the boat all the way. This is probably a regular migrant.

**Larus brachyrhynchus.** Short-billed Gull. Two birds seen in Sitka Harbor, October 2, 1913. Also noted at Juneau, October 5, and at Petersburg, October 7. Probably a regular migrant throughout the region. Secured at Sitka by Bischoff during the Russo-American Telegraph Expedition (Dall & Bannister, 1869, p. 305). Noted by the 1907 Alexander Expedition at Red Bluff Bay, Baranof

Island, in June; at Bear and Rodman bays, Baranof Island, in August, and at Hooniah and Idaho Inlet, Chichagof Island, in June and July (Grinnell, 1909, p. 190).

**Larus philadelphia.** Bonaparte Gull. Seen occasionally on Sitka Bay throughout the summer. More plentiful on the east side of Baranof Island, on Admiralty and Kuiu islands, and along the mainland shore.

**Xema sabini.** Sabine Gull. Three immature birds seen, two of which were secured on Sitka Bay, August 3, 1913. Not further noted.

**Sterna paradisaea.** Arctic Tern. Seen on two or three occasions on Sitka bay during the summer of 1912. Not noted in that locality in 1913. Plentiful, and apparently nesting on gravel bars in Taku Inlet, on the mainland, July 19, 1913.

**Diomedea nigripes.** Black-footed Albatross. Four birds seen on the west coast of Baranof Island, September 2, 1912. According to Merrill, this bird is occasionally seen in Sitka Bay during stormy weather. He secured a specimen May 20, 1908.

**Fulmarus glacialis glupischa.** Pacific Fulmar. One bird in the dark phase of plumage seen in Chatham Straits, east side of Baranof Island, September 6, 1913.

**Puffinus griseus.** Sooty Shearwater. Common on Sitka Bay during August and September. Also seen in Chatham Straits, September 5-9, 1913.

**Aestrelata fisheri.** Fisher Petrel. Merrill secured a male specimen of this rare petrel near Sitka, May 17, 1908. Now in collection of University of Washington.

**Oceanodroma furcata.** Forked-tailed Petrel. I estimated that there were about two thousand pairs of these birds nesting on St. Lazaria, the only place in the region where they were found breeding. Their nests were nearly all located among the grass roots on the steeper hillsides, and the young were practically all hatched by the middle of July. Grinnell (1897a, p. 76) found the eggs mostly advanced in incubation June 17, 1896. The only time that I noted any of these petrels away from the breeding colony was September 30 and October 1, 1913, when about thirty birds were seen feeding around the Sitka docks. At this time the weather was very stormy outside. Merrill states that he has occasionally seen this and the next species on Sitka Bay in fall and spring, but never in great numbers.

**Oceanodroma beali.** Beal Petrel. Although this form has not been recognized by the A. O. U. Committee, I find that a series of breeding birds from St. Lazaria Island are uniformly smaller than specimens of *O. leucorhoa* from the Atlantic coast, thus substantiating the characters ascribed by Emerson (1906, p. 54) to the form *beali*. In wing and tail measurements *beali* is intermediate between *leucorhoa* and *kacdingi*, slightly nearer the latter. In *beali* the wing averages about .5 inch shorter than in *leucorhoa*, and about .4 inch longer than in *kacdingi*. The tail is about .25 inch shorter than that of *leucorhoa* and the same amount longer than that of *kacdingi*. In color *beali* is slightly grayer than *kacdingi*. I estimated that there were about twenty thousand pairs of these petrels in the St. Lazaria colony. They were nesting on the grassy hillsides in company with the last species and also on top of the island among the timber. They breed generally later than *furcata*. Many nests containing fresh eggs were noted as late as July 31 (1912). Grinnell (1897a, p. 76) found the eggs of this species all fresh June 17, 1896.

**Phalacrocorax auritus cinnatus.** White-crested Cormorant. This bird is evidently only an occasional straggler to the vicinity of Sitka. It was not seen

at all by me, but Merrill reports its occasional occurrence. He secured a specimen in the spring of 1906, and another in the spring of 1908. Two specimens taken at Sitka by Bischoff are mentioned by Dall and Bannister (1869, p. 302), and Finsch (1873, p. 86) speaks of a specimen from Sitka being in the Leyden Museum (probably quoted from Schlegel).

**Phalacrocorax pelagicus pelagicus.** Pelagic Cormorant. Fairly common everywhere on salt water, but, according to local observers, much less abundant than formerly. In 1912 a few pairs were nesting on the small islands off Biorka, and about one hundred and fifty pairs were breeding on St. Lazaria. In 1913, although I canvassed the latter island thoroughly, I failed to find a single occupied nest. The birds, mostly immatures, were plentiful around the island but were not nesting. Brightman informs me that fifteen years ago this bird nested in great numbers on St. Lazaria, and Grinnell (1898, p. 126) found them abundant in 1896. The only explanation I can offer for their diminishing numbers is the persistent depredations of the Northwestern Crow (*Corvus caurinus*), which species appears to subsist to a great extent in summer on the eggs and young of the luckless cormorants. In 1912 I found the ground under the crows' roosts literally covered with the shells of cormorants' eggs and I doubt if any of the cormorants raised a full brood.

Although the pelagic cormorants of this district have been referred to *P. p. robustus*, I find that the characters ascribed to that form are not to be found in a series of specimens taken.

**Mergus americanus.** American Merganser. Not very common. I saw an adult male near Old Sitka, August 16, the only one personally noted. Merrill took a male near Sitka, October 20, 1908, and saw two birds that were shot in the same locality in the spring of 1903. The species was also noted at Sitka by Bischoff (Dall and Bannister, 1869, p. 301). Two females with broods of young were seen by F. Stephens at Red Bluff Bay, Baranof Island, June 19, 1907, and a downy young was secured by J. Dixon in the same locality two days earlier. The species was seen once at Hooniah, Chichagof Island, the last week in June (Grinnell, 1909, p. 193).

**Mergus serrator.** Red-breasted Merganser. Fairly common summer visitant. According to Merrill, appears in early May and leaves mostly in October. I noted this saw-bill in many different localities on both fresh and salt water, and saw broods of young at Tenakee Inlet, Chichagof Island, and Silver Bay, near Sitka. The flesh of this species was found to be very palatable, although by the time the birds arrive in California, they are generally strong-tasting and unfit to eat.

**Anas platyrhynchos.** Mallard. Breeds in small numbers; abundant during migrations, and, according to Merrill, a few remain throughout the winter. In early September appeared in large numbers at mouths of streams, and was still abundant at the time of my departure in early October. Merrill states that, while he has never found the nest, he has noted downy young on several of the fresh water lakes in the vicinity.

**Chaulelasmus streperus.** Gadwall. Merrill secured a specimen of this duck at Lisianski Bay, near Sitka, September 22, 1911. This is the only record I have seen for the region.

**Mareca americana.** Baldpate. Apparently a rare migrant, much more plentiful along the mainland shore. Merrill took one specimen at Sitka in the fall.

**Nettion carolinense.** Green-winged Teal. According to Merrill, abundant in spring and fall, less plentiful in winter, and a few remain through the summer and breed around fresh water lakes. I found this species plentiful in com-

pany with mallards and pintails around mouths of fresh water streams in September, 1913.

**Spatula clypeata.** Shoveller. Rare migrant. Merrill saw two birds that were shot near Sitka in the fall of 1904, and Brightman took a specimen on Admiralty Island in 1898. According to hunters, fairly plentiful along the mainland shore near Juneau.

**Dafila acuta.** Pintail. Fairly common migrant. I noted these birds on Sitka Bay in late August, 1913, and took two specimens near Sitka, September 26, following. The birds taken were feeding on a salt water snail (*Littorina sitchana*), and were gorged with the small shells. According to Merrill, occurs in the spring in late April and early May.

**Marila marila.** Scaup Duck. According to Merrill, abundant in summer and in migrations, less plentiful in winter. So far has not been found nesting in the locality but probably does so occasionally, as Grinnell (1898, p. 126) notes a nearly fledged juvenile obtained July 15, 1896. I found these birds common in flocks among the islands throughout the summer.

**Clangula islandica.** Barrow Golden-eye. Although it is very probable that both golden-eyes occur in this locality, the only record I have seen of specimens taken and positively identified is of the above species, secured by Bischoff (Dall and Bannister, 1869, p. 298). Merrill informs me that golden-eyes are most plentiful in spring and fall, but are found in small numbers throughout the year. He has taken downy young on Swan Lake, near Sitka, and Brightman has seen downy young on Chichagof Island. Neither of these two observers, however, were able to inform me as to which species of golden-eye these birds were referable. Swarth (1911, p. 43) records *C. c. americana* as quite common during April at Keku Straits and at Three-mile Arm, Kuiu Island. They were also seen on Prince of Wales Island in early May, following. *C. islandica* was not noted at all in this region. From these facts and from what is further known of the ranges of the two species, it is probable that *americana*, though it has so far not been definitely recorded from Sitka, will be found to be the commonest of the two forms in that locality.

**Charitonetta albeola.** Buffle-head. According to Merrill, this duck is plentiful from October to May, but most abundant during migrations. It was taken at Sitka by Bischoff (Dall & Bannister, 1869, p. 298).

**Harelda hyemalis.** Old-squaw. According to Merrill, the Old-squaw, or Pintail, as it is locally known, is a common winter visitant, not appearing in any numbers, however, until early November, and remaining plentiful until May.

**Histrionicus histrionicus.** Harlequin Duck. Common throughout the year. I noted flocks of these ducks feeding around the rocks in many localities on Sitka Sound and neighboring inlets during the summer months. According to Grinnell (1898, p. 126), fully fledged young appear about August 5. The same observer saw an adult in June two or three miles up Indian River, where it was probably nesting. Deputy U. S. Marshal Goodell informs me that he has seen downy young at Old Sitka, and he believes the birds nest along the stream that empties into the bay at that point.

**Oidemia americana.** Scoter. During September, 1913, I several times noted this species near Sitka. It was, however, not plentiful, being greatly outnumbered by the two following.

**Oidemia deglandi.** White-winged Scoter. The most abundant of the surf ducks in this section. Plentiful on the salt water throughout the summer, and

even more abundant during migrations. According to Merrill, occurs also in winter.

**Oidemia perspicillata.** Surf Scoter. Seen occasionally during the summer months. Becomes more plentiful about August 15, and is abundant by the middle of September. Merrill states that it winters in considerable numbers. According to Dall and Bannister (1869, p. 300), Bischoff obtained the eggs of this bird near Sitka.

**Anser albifrons gambeli.** White-fronted Goose. Rather common in migrations, which occur mostly in October and April. Merrill has taken several specimens and seen many others that were killed in the vicinity. I saw two birds that were shot by Brightman on Swan Lake, September 29, 1913.

**Branta canadensis canadensis.** Canada Goose. Two specimens taken at Sitka by Bischoff (Dall & Bannister, 1869, p. 295).

**Branta canadensis occidentalis.** White-cheeked Goose. Fairly common summer resident, breeding around fresh water lakes and ponds. More plentiful during migrations. Known to nest in several localities near Sitka, also on Chichagof and Kruzof islands. By early September was plentiful in small flocks at the mouths of streams, but was exceedingly wild, and no specimens were obtained by me, though I saw several brought into Sitka that had been shot by Indians with rifles. These birds are easily domesticated and several small flocks have been reared by local people.

**Philacte canagica.** Emperor Goose. The A. O. U. *Check-List* (1910, p. 88) mentions Sitka as a record station of this species. Professor Cook informs me that this is based on the fact that Dresser (1903, p. 598) lists Sitka as a record locality for the species. There is no intimation anywhere in this work, however, to show what the basis of the record was.

As this goose has occurred in winter in British Columbia and has even been recorded at this season from northern California, it is not at all unlikely that it should occur occasionally at Sitka. For this reason I have followed the example of the A. O. U. Committee and included the species in this list, although the evidence as to its actual occurrence in the locality, as given above, must be considered weak unless it can be further substantiated.

**Olor columbianus.** Whistling Swan. According to Merrill, the Whistling Swan is rather a common migrant, the migrations taking place mostly in October and early November, and in April. During the fall migration, flocks frequently alight on lakes and ponds, but in spring they usually pass over without stopping. Merrill has seen flocks passing high above the mountain ranges during the spring migration. He secured a specimen October 30, 1912, and knew of seven birds being taken by an Indian in October and November, 1910. Brightman saw a flock of about twenty-five swans going over Sitka, September 28, 1913.

The flesh of this bird is much prized by the Indians, who cut it into strips and smoke it. They also use the skins with the down for making articles of clothing.

**Ardea herodias fannini.** Northwestern Coast Heron. Occasionally seen in many different localities. Partial to timber-bordered streams and kelp patches. I saw several of these birds that were brought into Sitka by boys and sold to a local Chinaman. They are highly prized as a delicacy by this race.

**Grus canadensis.** Little Brown Crane. According to Merrill and Brightman, a regular migrant but usually passing over without stopping. The latter gentleman has taken specimens near Killisnoo, west side of Admiralty Island.

**Fulica americana.** Coot. Rare straggler. Merrill took a specimen near

Sitka in September, 1908, and knows of two or three others being taken in fall.

**Phalaropus fulicarius.** Red Phalarope. The main migration route of this bird apparently does not include the vicinity of Sitka. The only time it was noted by me was on September 9, 1913, when three birds were seen in Chatham Straits, east of Baranof Island. They were closely examined through a glass and their identity positively determined.

**Lobipes lobatus.** Northern Phalarope. Common on salt water all through the summer, and very abundant during migrations. Frequently noted around tide rips feeding among the drift brought together by meeting currents.

**Gallinago delicata.** Wilson Snipe. According to Merrill, frequently seen on swamp lands in spring and fall. Taken at Sitka by Bischoff (Dall & Bannister, 1869, p. 291). I saw a single bird of this species in a swampy meadow near Sitka, September 13, 1913. This was the only one seen by me in the region.

**Macrorhamphus griseus scolopaceus.** Long-billed Dowitcher. An immature bird taken on Kruzof Island, August 27, 1913, was the only one noted. It was in company with seven Hudsonian Curlews.

**Tringa canutus.** Knot. Single specimen taken at Sitka by Bischoff (Dall & Bannister, 1869, p. 291).

**Arquatella maritima couesi.** Aleutian Sandpiper. Found abundant at Sitka by Bischoff (Dall & Bannister, 1869, p. 291). This species and several others of the waders which have been previously noted by Bischoff and others, were not seen at all by me. I believe this is due to a certain extent to the persistent persecution of birds of the wading group by local hunters. As soon as a flock of waders is seen on the beach, the hunters appear and bombard them until they are either all killed or leave the locality. As a result waders were uniformly scarce in the immediate vicinity during my entire stay.

**Pisobia maculata.** Pectoral Sandpiper. I found this species fairly plentiful at the head of Hooniah Sound, Chichagof Island, September 10, 1913, and secured several specimens. This is the only time I noted it, but it is probably a regular migrant. A single specimen was taken by Bischoff at Sitka (Dall & Bannister, 1869, p. 292).

**Pisobia bairdi.** Baird Sandpiper. One specimen obtained at Sitka by Bischoff (Dall & Bannister, 1869, p. 292).

**Pisobia minutilla.** Least Sandpiper. Abundant migrant. I saw this species in many different localities during the fall, and Merrill tells me it is plentiful in spring. Grinnell (1898, p. 126) noted it as early as July 2.

**Pelidna alpina sakhalina.** Red-backed Sandpiper. Evidently a rather rare migrant. I saw one specimen on an outlying rock near Kruzof Island, July 31, 1912, the only one seen by me in the vicinity. Bischoff took ten specimens at Sitka (Dall & Bannister, 1869, p. 291).

**Ereunetes pusillus.** Semipalmated Sandpiper. According to Dall and Bannister (1869, p. 292), this species was taken at Sitka by Bischoff. It has also been recorded by Swarth (1911, p. 52) from Thomas Bay, on the mainland opposite Kupreanof Island. All specimens of *Ereunetes* taken by me in the vicinity of Sitka were referable to the next species.

**Ereunetes mauri.** Western Sandpiper. Common migrant on sandy beaches. Became plentiful in late July and remained so up to the time I left, the first part of October. According to Merrill, is most abundant in the spring in April and early May.

**Calidris leucophaea.** Sanderling. Evidently a rare migrant. I saw one bird

on Kruzof Island, August 26, 1913, but did not note the species further. Two specimens were secured at Sitka by Bischoff (Dall & Bannister, 1869, p. 292).

**Totanus melanoleucus.** Greater Yellow-legs. Taken at Sitka by Kittlitz (1858, p. 250), and Bischoff (Dall & Bannister, 1869, p. 292).

**Totanus flavipes.** Yellow-legs. The only time I noted this species in the region was on July 24, 1912, when a flock of about a dozen birds was seen at the lake on Biorka Island, and two specimens secured. It has been previously recorded from Sitka by Kittlitz (1858, p. 258), and Bischoff (Dall & Bannister, 1869, p. 292).

**Heteractitis incanus.** Wandering Tattler. Frequently seen around rocky islands. Most plentiful on Kruzof.

**Tryngites subruficollis.** Buff-breasted Sandpiper. One specimen secured at Sitka by Bischoff (Dall & Bannister, 1869, p. 293).

**Actitis macularius.** Spotted Sandpiper. Common in late summer and fall on Kruzof Island and at head of Silver Bay. Occasionally noted in other localities. The 1907 Alexander Expedition secured an adult and a downy young at Port Frederick, Chichagof Island, July 27, and Dixon noted a pair that evidently had eggs or young near a stream at the head of Idaho Inlet, the same island, July 20-25 (Grinnell, 1909, p. 202).

**Numenius hudsonicus.** Hudsonian Curlew. Regular migrant but not very plentiful. I noted the species several times in late summer and fall, and Merrill has taken it in spring.

**Squatarola squatarola.** Black-bellied Plover. Apparently a regular migrant in small numbers. Noted several times on Kruzof Island in late summer and fall. A large flock was also seen near Killisnoo, Admiralty Island, September 5, 1913. Bischoff took three specimens at Sitka (Dall & Bannister, 1869, p. 290), and an adult male in summer plumage was taken by Bean (1882, p. 163) June 8, 1880.

**Charadrius dominicus dominicus.** Golden Plover. Rather rare migrant. Bischoff took the species at Sitka (Dall & Bannister, 1869, p. 289), and Grinnell (1898, p. 127) records an immature male taken by Professor Hindshaw August 16, 1896. Merrill secured a male in a swamp near Sitka, May 21, 1908. A single bird of this species was seen by Merrill and myself at an altitude of over 4000 feet in the Great Eastern Mountains, Baranof Island, September 18, 1913. It was flying over the snow banks and glaciers and seemed considerably out of its natural element.

**Aegialitis semipalmata.** Semipalmated Plover. Very common migrant. Fall migration begins late in July and continues through September.

**Aphriza virgata.** Surf Bird. During the two summers spent in the region, I failed to find this species, though it was particularly sought for, so it is apparently not plentiful. Bischoff secured four specimens near Sitka (Dall & Bannister, 1869, p. 290), and Grinnell (1898, p. 127) took sixteen birds from a flock on a rocky islet, July 21, 1896.

**Arenaria interpres morinella.** Ruddy Turnstone. Rare migrant. I secured a specimen on Kruzof Island, August 12, 1912. Two or three others were seen at the same time. They were with a large flock of the next species on a sandy beach.

**Arenaria melanocephala.** Black Turnstone. Abundant migrant. Noted occasionally during the summer months. These birds are known to the local hunters as "plover" and are killed in large numbers, as they gather in big flocks and

are easily approached. I have seen one hunter come into Sitka with over a hundred birds.

**Haematopus bachmani.** Black Oystercatcher. Fairly common on outlying rocky islands. This species is also hunted to a considerable extent, and from what I could learn, is not as abundant as formerly.

**Dendragapus obscurus fuliginosus.** Sooty Grouse. While this bird could hardly be considered abundant, it is very generally distributed and was noted in the timber in many different localities, perhaps most plentifully on Kruzof Island. Small young were seen on the latter island July 17, 1912. The old birds were found to be rather tough eating, but the birds of the year were very palatable after hanging two or three days.

**Lagopus lagopus alexandrae.** Alexander Willow Ptarmigan. Apparently much less plentiful than the next species. The only place I found this ptarmigan was at an altitude of about 3000 feet on the slopes of Mt. Edgecumbe, Kruzof Island. On July 31, 1913, a small flock made up of this and the next species was flushed from the heather above timber line and specimens of both secured. *Alexandrae* was not seen on Baranof, and Merrill has never taken it, so it can not be considered plentiful in the region. Two specimens taken near Sitka by Bischoff are mentioned by Dall and Bannister (1869, p. 287).

An adult male, the type of this subspecies, was secured with an immature male by F. Stephens at Bear Bay, on Peril Straits, north end of Baranof Island, August 26, 1907. Another adult male was taken by Mr. Stephens near Hooniah, Chichagof Island, June 25, the same year (Grinnell, 1909, p. 204).

**Lagopus rupestris dixonii.** Dixon Rock Ptarmigan. Fairly common on Baranof and Kruzof islands. I failed to find it on Chichagof, but it is said to occur there in some numbers. The type, an adult male, together with another adult, was taken by J. Dixon, near Port Frederick, Chichagof Island, July 30, 1907 (Grinnell, l. c., p. 207). During the summer months these birds keep well up toward the summits of the mountain ranges, above timber line, where they feed on heather buds and berries. Owing to the difficulties in ascending these mountains, specimens are hard to secure at this season. They apparently move in bodies from one section of the mountains to another, and locating them is largely a matter of luck. I have been in sections of the mountains where sign less than a week old was abundant, but the most diligent search failed to locate a single bird. Whether these changes of location are due to the weather or food supply, I am unable to state.

I secured specimens of this form above the Lucky Chance mine in the Great Eastern Mountains, Baranof Island, at an altitude of about 3500 feet, August 28, 1912, and at a little less altitude on Mt. Edgecumbe, Kruzof Island, July 31, 1913. One of the birds taken in the latter locality was a fledgeling about two or three weeks old. Merrill informs me that during the winter months these ptarmigan come down to the coast and are frequently seen in the central part of Sitka.

**Zenaidura macroura marginella.** Western Mourning Dove. One record. Merrill took a male near Sitka September 14, 1912.

**Circus hudsonius.** Marsh Hawk. I secured an immature female in the flesh which was killed by a hunter near Tenakee, Chichagof Island, September 3, 1913.

**Accipiter velox.** Sharp-shinned Hawk. Rather common in the timber everywhere. Frequently seen among trees in the town.

**Astur atricapillus striatulus.** Western Goshawk. I was unable to obtain any information as to the breeding of the goshawk in this region. It is most plentiful in the vicinity of Sitka in the fall, some years occurring in much greater num-

bers than others. During August, 1912, I noted the birds frequently and secured specimens, but during the same season the following year, they were very scarce, only one or two being seen.

**Buteo borealis alascanensis.** Alaska Red-tail. Seen occasionally from the coast up to 4000 feet in the mountains. A specimen taken in the mountains of Baranof Island, August 28, 1912, was gorged with a small rodent (*Microtus*), while another taken on Kruzof Island, August 26, 1913, contained the remains of grouse. This hawk was most plentiful near the upper edge of the timber and was frequently seen hunting above timber line. Bean (1882, p. 162) records a specimen taken near Sitka June 5, 1880. J. Dixon took a specimen at Port Frederick, Chichagof Island, July 28, 1907 (Grinnell, 1909, p. 211).

**Archibuteo lagopus sancti-johannis.** Rough-legged Hawk. Taken at Sitka by Bischoff (Dall and Bannister, 1869, p. 272).

**Haliaeetus leucocephalus alascanus.** Northern Bald Eagle. The most common raptorial bird of the region, occurring from the ocean to the tops of the mountains. The nest is always placed near salt water, all those noted being in tall coniferous trees. The birds seen in the high mountains during the summer were nearly all immature. The young leave the nest late in August. According to Brightman, the eggs are deposited in late April and early May.

During the early summer months these birds apparently subsist to a considerable extent on fawns. Several dead eagles examined at this season were gorged with fawn meat, and the claws were covered with hair. The hunters of the region claim that the eagle is the worst enemy the deer have, and kill them at every opportunity. In the early fall when the salmon are running up the streams to spawn, these birds feed largely on fish, and they may be seen in numbers around every salmon stream. A nest examined on St. Lazaria Island in August, 1912, contained the remains of a great number of Tufted Puffins and young Glaucous-winged Gulls (Willett, 1912, p. 421).

**Falco peregrinus anatum.** Duck Hawk. Fairly well distributed among the islands but nowhere plentiful. Although the duck hawk of this region has been generally referred to *F. p. pealei*, specimens taken prove to be referable to *anatum*, as did specimens taken by the 1907 Alexander Expedition near Killisnoo, Admiralty Island (Grinnell, 1909, p. 215). On October 1, 1913, I saw one of these hawks swoop down and carry off a Forked-tailed Petrel from a small flock near the Sitka dock.

**Falco columbarius suckleyi.** Black Pigeon Hawk. In the last A. O. U. *Check-List* (1910, p. 165) Sitka is given as a record station for this species. I am informed by Professor W. W. Cooke that this record is based on the range as given by Baird, Brewer and Ridgway (1874, p. 143) in the key to the species of the genus *Falco*. Here the habitat of *F. c. suckleyi* is given as "northwest coast region from Oregon to Sitka." On page 147 the habitat is given as "coast district of northern California, Oregon and Washington (probably northward to Alaska)." The basis upon which Sitka is included in the range of the form as given on page 143 is not stated. Grinnell (1898, p. 123) mentions seeing pigeon hawks, presumably *F. c. suckleyi*, in the vicinity of Sitka during the summer of 1896. On August 10, 1913, while at an altitude of about 2500 feet in the mountains near Sitka, I shot a very dark colored pigeon hawk. Unfortunately it fell into an icy lake where it was impossible to secure it. This was the only time I noted the pigeon hawk in the region, and it must be regarded as far from common. As four specimens secured by the 1909 Alexander Expedition at Thomas Bay, Port Snettisham and Taku River, on the mainland, proved to be referable

to *F. c. columbarius* (Swarth, 1911, p. 63), it is very probable that this form also occurs at Sitka.

***Pandion haliaëtus carolinensis*.** Osprey. Rare summer visitant. Bischoff took specimens of this bird with the eggs near Sitka (Dall & Bannister, 1869, p. 272), and Bean (1882, p. 162) records a specimen taken at Hot Springs, near Sitka, June 9, 1880. I was informed by Merrill that the fish hawk is occasionally seen in the vicinity, and that a pair formerly nested at Silver Bay. I never met with the species personally in the region. J. Dixon saw four or five birds at Killisnoo, Admiralty Island, June 14, 1907 (Grinnell, 1909, p. 215).

***Asio flammeus*.** Short-eared Owl. Occurs on marsh lands during migrations, sometimes remaining into early winter. Forest Ranger Peterson gave me two specimens taken by him at Fish Bay, Baranof Island, November 27, 1912. Brightman saw a bird of this species in the marsh at Swan Lake, September 30, 1913.

***Scotiaptex nebulosa nebulosa*.** Great Gray Owl. Obtained at Sitka by Bischoff (Dall & Bannister, 1869, p. 273).

***Cryptoglaux funerea richardsoni*.** Richardson Owl. Merrill secured a specimen of this owl at Sitka in the fall of 1907.

***Otus asio kennicotti*.** Kennicott Screech Owl. Type taken at Sitka by Bischoff during the Russo-American Telegraph Expedition. Described by D. G. Elliot (1867, p. 99). Figured by Baird (1869, pl. xxvii). Merrill has seen this species in flight several times and found one specimen dead. He considers it far from common.

***Bubo virginianus saturatus*.** Dusky Horned Owl. During the two summers spent in the Sitkan district I never saw a live owl of any kind, although they were particularly sought for. From information secured, however, I should judge that the Dusky Horned Owl is the commonest owl of the region. Merrill has taken a number of specimens, and has seen several more that were shot in the vicinity of Sitka. A. J. Wilkus, who was formerly in charge of the government experimental farm at Sitka, gave me a specimen that he shot in his chicken yard at 2 A. M. August 29, 1912. Two birds, one of which I saw, were shot in the town on the night of September 25, 1913. F. Stephens took a specimen at Rodman Bay, Baranof Island, August 15, 1907 (Grinnell, 1909, p. 216).

***Nyctea nyctea*.** Snowy Owl. Winter visitant. Merrill took a male near Sitka, November 2, 1908, and a female November 17, following. I was told of several others shot in the vicinity in winter. Nelson (1887, p. 154) mentions a specimen in the National Museum collected at Sitka during the winter of 1881-82.

***Surnia ulula caparoch*.** Hawk Owl. Obtained by Bischoff at Sitka (Dall & Bannister, 1869, p. 274).

***Ceryle alcyon caurina*.** Northwestern Belted Kingfisher. Fairly common resident. Frequents the mouths of streams, and shores of islands and inlets. In early August, 1912, a nest containing young was noted in a gravel bank on Kruzoi Island.

***Dryobates villosus sitkensis*.** Sitka Hairy Woodpecker. Not very common, but generally distributed throughout the timbered country. In a day's walk through the timber one would probably see or hear two or three of these birds. They are exceedingly wary and hard to secure. A specimen secured by the writer and one taken by Merrill, as well as the series from southeastern Alaska in the University of California Museum of Vertebrate Zoology, are certainly readily distinguishable from *D. v. harrisi* of the Puget Sound region by their light colored

under parts and more conspicuously white-spotted wing coverts. For this reason I have used the name given this bird by Swarth (1911b, pp. 313-318) instead of including it under *harrisi* as is done by the A. O. U. Committee.

***Dryobates pubescens nelsoni*.** Nelson Downy Woodpecker. I saw an adult male downy woodpecker on Kruzof Island August 25, 1913. I was armed only with a rifle at the time and did not collect it. Merrill has seen the species a few times near Sitka, and it was secured by Bischoff (Dall & Bannister, 1869, p. 274). It is one of the least common residents of the region. *Dryobates pubescens glacialis* of Grinnell (1910, p. 390).

***Picoides americanus americanus*.** American Three-toed Woodpecker. An adult male taken by C. Littlejohn at an altitude of 2300 feet near Hooniah, Chichagof Island, June 25, 1907, was used by Grinnell (1909, p. 217) as type of a new subspecies, *P. a. fumipectus*. This form, however, is not recognized by the A. O. U. Committee. A specimen of the three-toed woodpecker was taken by A. E. Hasselborg at Freshwater Bay, Chichagof Island, November 27, 1909 (Swarth, 1911a, p. 69).

***Sphyrapicus varius ruber*.** Northern Red-breasted Sapsucker. Merrill has seen this bird on one or two occasions in the timbered swamps back of Sitka. It is, however, decidedly uncommon. Although the name *S. ruber notkensis* is used by the A. O. U. Committee for the northern form of the Red-breasted Sapsucker, it seems to me that, in view of the facts pointed out by Swarth (1912, pp. 35-38), this name is untenable.

***Colaptes auratus luteus*.** Northern Flicker. I never saw this bird in the region, and Merrill has noted it but once, on September 26, 1913, when he saw a single bird in the swamp back of Sitka. Grinnell (1898, p. 127) mentions seeing dance costumes of the Indians decorated with wing and tail feathers of this and the next species. I have seen a number of these costumes but the feathers used were all of the next species.

***Colaptes cafer saturator*.** Northwestern Flicker. Rather frequently seen in the forests. An immature specimen was secured on Biorka Island July 24, 1912.

***Chaetura vauxi*.** Vaux Swift. Fifteen or twenty of these swifts were seen at Patterson Bay, east side of Baranof Island, September 7, 1913. They were feeding around a waterfall, and a specimen was secured. A single bird was also noted at Cascade Bay, a few miles to the northward, September 9, following.

***Selasphorus rufus*.** Rufous Hummingbird. Summer visitant. Generally distributed but not very plentiful. Noted from the water's edge to 3500 feet in the mountains.

***Empidonax difficilis difficilis*.** Western Flycatcher. Summer visitant. I saw and heard this species occasionally in the woods back of Sitka. Grinnell (1898, p. 128) found them common in the same locality in the summer of 1896. June 30 he took a female containing an egg ready to be laid. He noted young appearing with their parents August 1. Bean (1882, p. 161) took an adult male near Sitka June 5, 1880, and saw several others in the same locality. A specimen was taken by F. Stephens at Red Bluff Bay, Baranof Island, June 14, 1907, and one was seen at Rodman Bay, same island, in late August, following (Grinnell, 1909, p. 220).

***Pica pica hudsonia*.** Magpie. According to Merrill, the magpie is only an occasional fall straggler to Sitka, being more frequently seen on Chichagof and Admiralty islands. He secured a male near Sitka, October 20, 1908, and a female about twenty miles north of Sitka, October 28, 1912. He has seen a few others in the vicinity in fall. According to Dall and Bannister (1869, p. 286),

Bischoff found the species abundant at Sitka. It may possibly have been more plentiful in Bischoff's time. At any rate it can not be considered abundant, nor even common, at the present time.

**Cyanocitta stelleri stelleri.** Steller Jay. Common resident. Most plentiful along the shores and in clearings in the timber.

**Corvus corax principalis.** Northern Raven. Very common and generally distributed throughout the region. Plentiful in the streets of Sitka and on the nearby beaches, feeding on refuse and carrion. They were also noted on the tops of the mountain ranges where they were frequently seen playing on the snow banks and glaciers. They would dig holes in the snow and, lying down in them, would scratch the snow over their backs with bill and wings, the coolness secured in this way evidently affording them great enjoyment. They frequently follow the bald eagles when the latter are hunting, probably in hopes of securing a share of the prey. On one occasion I had killed a deer and left it for a couple of hours. On my return the eyes and part of the intestines had been picked out by the ravens. I was never able to find the nest of this species nor could I find anyone who had seen one. They certainly breed in large numbers somewhere in the region but probably some little distance from Sitka.

The raven is very fond of clams, abalones, sea urchins and other shell fish, which are secured from the rocks at low tide. The shells are frequently found high up on the hillsides, where they have been carried by the ravens. On one occasion Merrill watched a number of birds standing around a hog that was digging clams from the mud. As fast as the clams were brought to the surface they were appropriated by the ravens.

The raven heads the list of birds deemed sacred by the Indians. Among others are the owl, woodpecker and kingfisher. These are often seen in grotesque figures on the totem poles.

**Corvus caurinus.** Northwestern Crow. Abundant on the islands and along the beaches. Nests from which the young had emerged were noted on St. Lazaria and Biorka islands. During the nesting season this Crow feeds to a great extent on the eggs and young of sea birds. In the fall after the young are raised and the sea birds are through nesting, they gather in large flocks along the beaches at low tide, feeding on shell fish and crustaceans, and when the tide is in, scratching among the drift kelp along the shore.

**Nucifraga columbiana.** Clarke Nutcracker. Single specimen secured by Bischoff at Sitka (Dall & Bannister, 1869, p. 286).

**Euphagus carolinus.** Rusty Blackbird. A few specimens taken at Sitka by Bischoff (Dall & Bannister, 1869, p. 285). Single specimen seen by A. E. Hasselborg at Freshwater Bay, Chichagof Island, November 25, 1909 (Swarth, 1911a, p. 80).

**Pinicola enucleator flammula.** Kadiak Pine Grosbeak. According to Merrill, this bird is occasionally seen throughout the year but is most plentiful in October and November. On August 24, 1912, while Merrill and I were walking in the swamp back of Sitka, he secured an immature bird of this species which he presented to me. This was the only one seen at the time. August 13, 1913, I saw a small flock of these birds in the tops of tall trees along Indian River. One was shot but dropped in the dense underbrush and was lost. The species was noted by the 1907 Alexander Expedition on Chichagof Island (Hooniah, June 25, Port Frederick, July 25, and Idaho Inlet, July 20-25), and six specimens secured (Grinnell, 1909, p. 222). It was also taken at Sitka by Bischoff (Dall & Bannister, 1869, p. 281).

***Loxia curvirostra minor*.** Crossbill. Common, though apparently very irregular in their movements. During August, 1912, I secured several specimens of this bird and found it very common on Kruzof and St. Lazaria islands, and in the forest back of Sitka. At the same season in 1913, they were far from plentiful, the only ones seen being high up on the mountain sides. Specimens taken in 1912 seem to possess the characters ascribed by Grinnell (1909, p. 223) to the race *L. c. sitkensis*. This form has not been accepted by the A. O. U. Committee.

***Loxia leucoptera*.** White-winged Crossbill. Four specimens taken by the 1907 Alexander Expedition at Hooniah, Chichagof Island, June 25 (Grinnell, 1909, p. 225).

***Leucosticte tephrocotis littoralis*.** Hepburn Rosy Finch. A specimen taken at Sitka by Bischoff and one taken at Fort Simpson, B. C., were used by Baird (1869, p. 318) in describing this form. The species was noted by the 1907 Alexander Expedition near Hooniah, Chichagof Island, at an altitude of about 2500 feet, June 21-27 (Grinnell, 1909, p. 226). Although I traversed several of the mountain ranges of Baranof Island rather thoroughly and looked particularly for this bird, I never saw it, so it must be rather uncommon.

***Acanthis linaria linaria*.** Redpoll. Specimens from Sitka mentioned by Dall and Bannister (1869, p. 28).

***Spinus pinus*.** Pine Siskin. Common summer resident. Found most plentifully in shrubbery and evergreen growth near the town.

***Plectrophenax nivalis nivalis*.** Snow Bunting. Occasional winter visitant. Merrill saw three birds at Sitka in early December, 1910. He also noted five birds in the same locality, November 17, 1911, and seven birds December 7, 1912. One of the latter was secured. In all these instances the birds only remained a few days and disappeared. The species was also taken at Sitka by Bischoff (Dall & Bannister, 1869, p. 282).

***Calcarius lapponicus alascensis*.** Alaska Longspur. Taken at Sitka by Bischoff (Dall & Bannister, 1869, p. 283).

***Passerculus sandwichensis sandwichensis*.** Aleutian Savannah Sparrow. Two specimens taken at Sitka by Bischoff (Dall & Bannister, 1869, p. 284). In September, 1913, I found Savannah sparrows rather common in grassy marshes at mouths of streams in the vicinity of Sitka. A specimen of *P. s. sandwichensis* was taken at Silver Bay September 23.

Swarth (1911a, p. 84) took a specimen of this bird at Three-mile Arm, Kuiu Island, May 3, 1909, and three more at Egg Harbor, Coronation Island, May 15, following, but did not find it to the eastward of these points. The 1908 Alexander Expedition did not note the species at all in the Prince William Sound district (Grinnell, 1910, p. 399). From the above facts it would seem (as pointed out by Swarth) that the regular migration route of this bird lies along the extreme western edge of the archipelago.

***Passerculus sandwichensis alaudinus*.** Western Savannah Sparrow. The breeding Savannah sparrow of the Sitka district has been referred to both *P. s. alaudinus* and *P. s. savanna*. As I did not secure a series of specimens, I am not able to definitely refer them to one form or the other. They seemingly possess some characteristics of each, and a large series of specimens will have to be brought together before their standing can be satisfactorily determined. In view of these facts I have tentatively used the name *alaudinus*, under which the birds of this region are included in the latest A. O. U. Check-List.

Savannah sparrows taken at Sitka by Bischoff and recorded as *P. savanna* (Dall & Bannister, 1869, p. 283), were later examined by Nelson (1887, p. 187)

and pronounced by him to be "typical examples of *alaudinus*." Two specimens secured by the 1907 Alexander Expedition on Baranof Island, and one from Chichagof Island, are stated by Grinnell to be nearer *savanna* than *alaudinus*. A nest containing five fresh eggs was found by C. Littlejohn at an altitude of about 2600 feet near Hooniah, Chichagof Island, June 25, 1907 (Grinnell, 1909, p. 228). I found Savannah sparrows fairly common in summer on grass lands from 2500 to 3500 feet altitude on the mountains of Baranof Island. They were undoubtedly breeding in this locality but no nests were found. A specimen was taken but was very badly shot up and was not preserved. The bill of this specimen was small and the superciliary stripe was whitish, rather than yellowish. For these reasons, at the time, I considered it *alaudinus*.

**Zonotrichia coronata.** Golden-crowned Sparrow. Abundant migrant. Arrived in the neighborhood of Sitka September 1, and was still present in some numbers a month later, although the height of migration seemed to have passed. It was noted from the shore up to above timber line on the mountains. According to Merrill, the return migration takes place mostly in late April and early May.

**Spizella monticola ochracea.** Western Tree Sparrow. One specimen taken at Sitka by Bischoff (Dall & Bannister, 1869, p. 285).

**Junco hyemalis oregonus.** Oregon Junco. Abundant summer resident, remaining until late in the fall and possibly wintering, though I secured no positive information on the latter point. Breeds from the salt water up to at least 2000 feet around mountain meadows. About August 15 large companies of adults and young appear along the beaches where they feed among the piles of kelp and drift-wood.

**Melospiza melodia rufina.** Sooty Song Sparrow. This species, originally described from Sitka (Bonaparte, 1850, p. 477), is a common summer visitant in brush and grass lands on islands and along the shore. After the latter part of August, I was unable to find it, all song sparrows observed after that time belonging to the next form. A nest containing four slightly incubated eggs was taken by F. Stephens at Hooniah, Chichagof Island, June 23, 1907 (Grinnell, 1909, p. 230).

**Melospiza melodia caurina.** Yakutat Song Sparrow. Abundant migrant. Appears in the vicinity of Sitka about August 15, and by September 1 is very plentiful. Was still common when I left, in early October. I did not secure any data as to the time of the spring migration.

**Melospiza lincolni gracilis.** Forbush Sparrow. This bird was first described from Sitka by Kittlitz (1858, p. 199), as *Emberiza gracilis*; therefore I have used the name *gracilis* instead of *striata* which is used in the last A. O. U. *Check-List*. It is apparently a fairly common summer visitant during some years, and much less plentiful during others. In the summer of 1912 I found it common in the grass around Swan Lake and in marshes at the head of Silver Bay. Young birds just out of the nest were noted in the former locality July 28. During 1913 I visited both of these localities several times but failed to find the species at all, nor did I note it anywhere else in the region. Grinnell (1898, p. 129) took specimens at Swan Lake, June 25, 1896, one of which was a juvenile about one-third grown. During the summer of 1907 the Alexander Expedition noted this bird at Bear Bay, Baranof Island, and at Port Frederick, Idaho Inlet, and Hooniah, Chichagof Island. A nest containing five young was found by Littlejohn in the latter locality June 26 (Grinnell, 1909, p. 231).

**Passerella iliaca townsendi.** Townsend Fox Sparrow. Common summer

visitant on brush lands. Partial to the smaller grass and brush covered islands like St. Lazaria and Biorka. It was still fairly common when I left, in early October.

***Hirundo erythrogastra*.** Barn Swallow. Common summer visitant; most plentiful around towns. The majority of these birds leave for the south about August 15. One or two, however, were noted as late as August 22 (1912).

***Iridoprocne bicolor*.** Tree Swallow. Common summer visitant in timbered localities. In late July after the young are out of the nests, they appear along the coast in small flocks, feeding over the surface of the water. They leave mostly about August 1, but one bird was seen as late as August 22 (1912).

***Bombycilla garrula*.** Bohemian Waxwing. Merrill has the wings of a specimen taken by him near Sitka, August 27, 1904.

***Vermivora celata lutescens*.** Lutescent Warbler. Fairly common summer visitant along clearings and on brush lands at mouths of streams. I noted it near Sitka, at Old Sitka, and at head of Silver Bay. It was seen by Dixon at Port Frederick, Chichagof Island, in late July, 1907 (Grinnell, 1909, p. 234).

***Dendroica aestiva rubiginosa*.** Alaska Yellow Warbler. Fairly common summer visitant in favorable localities. I noted this species along Indian River, along the stream at Old Sitka, at the head of Silver Bay, and, once, on Kruzof Island.

***Dendroica townsendi*.** Townsend Warbler. Adult female taken by Grinnell (1898, p. 129) near Sitka, August 14, 1896, and two others seen at the same time. According to Hartlaub (1883, p. 267), a specimen from Sitka is in the Bremen and Stockholm collection. Male seen by Stephens at Red Bluff Bay, Baranof Island, June, 1907 (Grinnell, 1909, p. 235).

***Wilsonia pusilla pileolata*.** Pileolated Warbler. Seemingly the commonest of the warblers summering in the region. Particularly plentiful along Indian River, at Old Sitka and at the head of Silver Bay. Also observed on Kruzof and several of the smaller islands. Obtained at Sitka by Bischoff with nest and eggs (Dall & Bannister, 1869, p. 278—"Myodiocetes pusillus").

***Anthus rubescens*.** Pipit. Common in summer on grassy slopes of the mountains above timber line, where it undoubtedly breeds. The breeding female taken by Grinnell (1898, p. 129), at Indian River June 10, 1896, had probably straggled down from a nearby mountain to feed. According to Merrill, common along the coast during migrations.

***Cinclus mexicanus unicolor*.** Dipper. Fairly common along streams. Noted frequently on Indian River and on streams at head of Silver Bay. Also seen on east side of Baranof Island. Noted by Dixon at Port Frederick, Chichagof Island, July, 1907 (Grinnell, 1909, p. 237). Previously recorded from Sitka by Kittlitz and Bischoff.

***Nannus hiemalis pacificus*.** Western Winter Wren. Common summer visitant on grass and brush lands. Especially numerous on some of the smaller islands. Was fairly plentiful as late as October 1, but probably does not winter.

***Certhia familiaris occidentalis*.** California Creeper. Not very common. Seen occasionally at Indian River and once on Kruzof Island. Several specimens secured by Grinnell (1898, p. 130) in summer of 1896; two scarcely fledged juveniles taken July 2. Previously recorded from Sitka by Kittlitz (1858, p. 212).

***Sitta canadensis*.** Red-breasted Nuthatch. A bird of this species was noted by the 1907 Alexander Expedition at Port Frederick, Chichagof Island, the last of July (Grinnell, 1909, p. 238); Shaw (1907, p. 122) mentions hearing the harsh, nasal cry of the nuthatch in the woods back of Sitka.

***Penthestes rufescens rufescens*.** Chestnut-backed Chickadee. The most com-

mon land bird of the region. Plentiful in timbered sections from the coast well up into the mountain meadows. Grinnell (1898, p. 130) secured fully fledged young June 26, 1896.

***Regulus satrapa olivaceus*.** Western Golden-crowned Kinglet. Rather plentiful in the forests throughout the region. In the latter part of September they were gathered in companies in tree tops near the coast, apparently preparing to migrate.

***Regulus calendula grinnelli*.** Sitka Kinglet. Not common. Noted in woods back of Sitka and at head of Silver Bay. Type specimen taken by Grinnell at Sitka in 1896 (Palmer, 1897, p. 399). Two specimens taken at Sitka by Bischoff were recorded as *R. calendula* (Dall & Bannister, 1869, p. 276). On Chichagof Island the species was noted as rare by Dixon at Hooniah, June 21-27, and at Port Frederick, July 25 to August 1 (Grinnell, 1909, p. 239).

***Hylocichla ustulata ustulata*.** Russet-backed Thrush. Fairly common summer visitant along streams and on some of the islands. Not noted after August 15. F. Stephens found a nest containing four young ready to fly, at Idaho Inlet, Chichagof Island, July 22, 1907 (Grinnell, 1909, p. 240).

***Hylocichla guttata nanus*.** Dwarf Hermit Thrush. Common summer visitant. Especially plentiful on wooded islands. Grinnell (1898, p. 130) obtained young July 2 and found others only half fledged as late as August 15 (1896).

***Planesticus migratorius propinquus*.** Western Robin. Common summer visitant. Appears in large flocks along the shores in late July and August after the young are raised. Continues rather plentiful until October. Merrill secured a perfect albino of this species August 12, 1909. Grinnell (1909, p. 241) has given the name *P. m. caurinus* to the robin inhabiting the Sitka district. This form has not been accepted by the A. O. U. Committee.

***Ixoreus naevius naevius*.** Varied Thrush. Rather common in the woods from the ocean nearly up to timber line. Particularly plentiful on St. Lazaria and Biorka islands. Grinnell (1898, p. 131) took the first young July 2. Merrill informs me that he has seen this bird throughout the winter.

#### QUESTIONABLE RECORDS

The records of the following species are believed to be erroneous or extremely questionable.

***Aethia pygmaea*.**

***Aethia cristatella*.** Recorded by Schlegel. These two species might straggle to the vicinity of Sitka but the Schlegel records are unsatisfactory.

***Diomedea albatrus*.**

***Puffinus tenuirostris*.** Recorded by Schlegel. It is probable that these two birds do occur in the vicinity, but further records seem necessary to establish the fact.

***Phalacrocorax perspicillatus*.** Recorded by Schlegel. Occurrence highly improbable.

***Aegialitis meloda*.** Recorded by Kittlitz (as *Charadrius melodus*). The bird seen was probably *Ae. semipalmata*.

***Bonasa umbellus sabini*.** Recorded by Dall as taken by Bischoff. Occurrence highly improbable. I am informed by Professor Cooke that there is a specimen in the Bischoff collection in the National Museum originally marked from Sitka. Later on (before 1874) this locality was scratched out and New Westminster, B. C., written over it.

***Accipiter cooperi*.** Recorded by Grinnell (1898, p. 127). Mr. Grinnell in-

forms me that he now has serious doubts as to the accuracy of his identification of this species at Sitka.

***Parus atricapillus.***

***Hylocichla aliciae.*** Recorded by Dall. Professor Cooke informs me that there are no specimens of either of these two latter forms in the Bischoff collection in the National Museum. Neither are there specimens of any other forms that could have been confounded with them. He considers the publication by Dall of their being taken at Sitka by Bischoff to be a mistake of the writer.

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*Los Angeles, California, January 21, 1914.*

## FROM FIELD AND STUDY

**Hooded Merganser near Los Angeles.**—A female Hooded Merganser (*Lophodytes cucullatus*) was taken by Mr. A. E. Jackson at Del Rey, Los Angeles County, on November 27, 1913. The species is of sufficient rarity in southern California to make the recording of this capture seem worth while.—W. LEE CHAMBERS, *Los Angeles, California*.

**A New Bird for the Kansas List.**—On April 12, 1913, I secured a female robin near Lawrence, Kansas, which upon examination proves to be *Planesticus m. achrusterus*, a diagnosis confirmed by Mr. H. C. Oberholser. Other specimens have been collected and examined in this same locality in years past. This race seems to be a regular migrant in April, and may perhaps prove to be the breeding form in the southeastern portion of the State. The nearest point at which this bird has been recorded previously is Van Buren, Arkansas (Howell, *Birds of Arkansas*, Bul. 38, Biological Survey, p. 92).—ALEX WETMORE, *Biological Survey, Washington, D. C.*

**California Brown Pelican in British Columbia.**—On July 18, 1913, about 10 A. M., between Alert Bay, Johnson Straits, and Round Island, east entrance to Queen Charlotte Sound, British Columbia, I saw a California Brown Pelican (*Pelecanus californicus*). The weather had been very warm, dry and clear; but a dense fog that morning had, for safety's sake, necessitated the "Spokane" to lie at anchor at Alert Bay from five to nine A. M. After it cleared and we were under full steam again, we passed a low, narrow sandbar upon which the Pelican stood surrounded by a flock of sea gulls. With my field glasses I had a long and most satisfactory study of him, in his characteristic (profile) pose, with his neck and bill forming an inverted V.—MRS. F. T. BICKNELL, *Los Angeles, California*.

**More Records of the Emperor Goose in California.**—Mr. Vernon Shepherd, a prominent taxidermist of San Francisco, has reported to me that he has known of at least a dozen specimens of the Emperor Goose (*Phalacrocorax auritus*) having been taken in California since 1906. Three of this number he took himself near Dixon, Solano County, California. He has donated to the Museum of Vertebrate Zoology a mounted specimen of a male taken by a market hunter at Colusa, Colusa County, in November, 1912. The specimen was sent to the market in San Francisco and was obtained by Mr. Shepherd from L. Scatena Company.

Mr. Wm. Hackmeier, another taxidermist of San Francisco, has reported the two following records, the first of which was verified by correspondence with the collector.

Male specimen taken November 15, 1913, 10 miles west of Modesto, Stanislaus County, California, by W. D. Toomes. The bird came to the blind alone and was shot. The specimen was mounted by Mr. Hackmeier and is now in the possession of the collector at Modesto.

An individual identified by Mr. Hackmeier as an immature male Emperor Goose was taken near Ingomar, Merced County, California, in December, 1912, by Louis Pfitzer. The bird was not preserved.

The records for Stanislaus and Merced Counties are the first known instances of the occurrence of the Emperor Goose in the San Joaquin Valley. There have been but four previous published records of the occurrence of this goose in California.—H. C. BRYANT, *Museum of Vertebrate Zoology, University of California, Berkeley*.

**Flight of Swainson Hawks at Pomona, California.**—On April 4 of the present year, while collecting in a small wash just east of here, a boy called my attention to a large blackish hawk perched in the top of a small eucalyptus. It was easily shot and proved to be a *Buteo swainsoni* in melanistic plumage. At the shot several more flew from a near-by grove of tall eucalyptus, and a passing train scared out the remainder of the flock which numbered about thirty birds all told. About half of them flew close past me and showed themselves to be in the same dark plumage as the one taken. Of the birds that remained circling over the grove one certainly was of a much lighter color than the rest; but whether these last were as dark as those seen at close range I am unable to say for certain, though such was apparently the case.—ADRIAAN VAN ROSSEM, *Pomona, California*.

**Egrets in Los Angeles County, California.**—On Thursday, September 2, 1913, about ten o'clock in the morning, while the Audubon Society was enroute to Anaheim Landing on the electric cars, we saw three large Egrets (*Herodias egretta*) in the marsh just back of Alamitos Bay. Feeding not far from these large white herons were several Great Blue Herons. When we returned in the afternoon the birds were nowhere in sight.

About March 17, 1913, I saw one Egret on Wilmington Bay, at low tide. On March 23, 1913, I saw what I supposed to be the same bird, in another part of the same bay.—HARRIET WILLIAMS MYERS, *Los Angeles, California*.

**Two Birds New to Oregon.**—*Arquatella maritima couesi*. Aleutian Sandpiper. While climbing about over the ragged rocks on the Oregon coast about two miles north of Netarts Bay on December 31, 1912, with Mr. O. J. Murie, we flushed a small flock of waders. Mr. Murie fired into the flock killing three birds, one of which proved to be an Aleutian Sandpiper, the other two being Surf-birds (*Aphriza virgata*). While visiting the same locality during March of this year (1913) I kept a careful lookout in all suitable localities and on the 10th was rewarded by seeing two more Aleutian Sandpipers climbing about on an almost perpendicular cliff just above the roaring surf. Both were secured and preserved as specimens.

*Dendroica palmarum palmarum*. Palm Warbler. In September, 1913, while collecting birds in Catlow Valley, Harney County, at the west base of the Steins Mountains, one of these warblers was killed by Harry Telford in the willow thicket in the yard of the Home Creek Ranch. It was feeding in company with Audubon Warblers, which were especially abundant at this locality.—STANLEY G. JEWETT, *Portland, Oregon*.

**Probable Occurrence of the Harris Sparrow in Washington.**—A correspondent, Mrs. Lucy M. Ellis, of North Yakima, Washington, under date of November 27, 1912, reports the recent occurrence of a sparrow whose characters were minutely noted and which could have been none other than an immature Harris (*Zonotrichia querula*).

On May 14 of this year at almost identically the same spot in the city of North Yakima, Mrs. Ellis saw a Harris Sparrow in full regalia. In view of the reported occurrences of this bird in both California and Oregon, and in view of Mrs. Ellis's careful description, there can be no reasonable doubt of *Z. querula's* claim to a place in the Washington avifauna.—W. LEON DAWSON, *Santa Barbara, California*.

**Mallard Nesting in Tree.**—On June 2, at Pauline Marsh, Lake County, Oregon, I found a Mallard nest in what I thought an unusual site. It was placed in a deserted crow's nest, some eight feet up in a clump of willow trees, surrounded by the marsh. The nest was lined with down, and contained six well incubated eggs. Before the female returned to the nest, the crows, that with a colony of Black-crowned Night Herons were also nesting in the willows, descended upon the nest and ate one of the eggs. In one patch of tules at this place we found a large number of ducks' eggs, probably 150, that had been destroyed by these crows. In some cases entire nests had been rifled. The Night Herons likewise suffered much from these depredations, but we did not make an estimate of the damage.—ALEXANDER WALKER, *Mulino, Oregon*.

**Accidents to Spotted Sandpipers.**—Of three specimens of *Actitis macularius* taken along the rocky beach south of Redondo, California, on December 7, 1913, one had the last phalanx of middle toe of left foot gone, with claw hanging by a tendon. Another had the right leg gone at the knee, and the third had last phalanx of outer toe of right foot gone with claw. In every case the amputation occurred at a joint, and the wound had healed in a smooth slightly enlarged knob. Can this be the work of the soft-shell "side-step" crabs so abundant among these rocks? One can imagine one of these crabs catching a toe or leg in its big claw, but unable to subdue a struggling bird, which would finally twist off a toe or leg. Has anyone else noticed similar deformities?—J. EUGENE LAW, *Hollywood, California*.

**A New Record for the Pacific Slope of Southern California.**—On December 12, 1912, while hunting through a large weedy field near El Monte, Los Angeles County, I encountered a flock of San Diego Song Sparrows (*Melospiza m. cooperi*) and Lincoln Sparrows (*Melospiza l. lincolni*) which must have numbered over a hundred individuals. Among specimens collected was a Mountain Song Sparrow (*Melospiza melodia montana*). In order to make doubly sure, Mr. Grinnell and Mr. Swarth most kindly verified the identification. This would seem to constitute a new record for the Pacific slope of southern California.—A. BRAZIER, HOWELL, *Covina, California*.

**Occurrence of the Black-bellied Tree-duck in California.**—In the possession of Mr. Vernon Shepherd, a taxidermist of San Francisco, there is a mounted specimen of a Black-bellied Tree-duck taken in the Imperial Valley, southern California, in the fall of 1912. The specimen was sent with a sack of ducks to the market near the first of the season and was obtained from L. Scatena Company.

I believe this is the first authentic record of the Black-bellied Tree-duck (*Dendrocygna autumnalis*) for California.—H. C. BRYANT, *Museum of Vertebrate Zoology, University of California, Berkeley*.

**The Great Gray Owl in California.**—Up to the present time there have been but two records of *Scotiaptex nebulosa* for California. Newberry (Pac. R. R. Reports, VI, 1857, p. 77) accredits the species rather vaguely to "the Sacramento Valley". Belding (Land Bds. Pac. Dist., 1890, p. 50) knew of a specimen having been killed "in the hills near Chico", Butte County.

On September 26, 1913, a farm hand on the property of Mr. Chas. S. Wheeler, about six miles south of the town of McCloud, in Siskiyou County, California, killed a Great Gray Owl. To be more specific, as I am informed by Mr. Wheeler, the locality is Section 28, Township 39 North, Range 2 West. The bird was sent to a taxidermist in San Francisco where it was mounted, and subsequently presented by Mr. Wheeler to the California Museum of Vertebrate Zoology, where it is catalogued as number 24484 of the ornithological collection. As compared with specimens of *Scotiaptex nebulosa nebulosa* from Alaska and Canada, I can see no noteworthy peculiarities.—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley*.

**Nesting of the Gray Flycatcher in Oregon.**—June 7, 1913, I collected a nest and three eggs of the Gray Flycatcher (*Empidonax griseus*) on the juniper flat, at the north of Pauline Mountains, Crook County, Oregon. The parent bird was taken with the nest, and identified by Mr. H. C. Oberholser and Mr. Joseph Grinnell. The eggs were creamy white, and were but slightly incubated. Data reads as follows: Nest composed of small dead weed stems, plant down, hair, shreds of sage-brush bark and some grasses, quilted together and lined with wool and fine feathers. Situated in the crotch of a sage-bush, on a sage and juniper flat. Nest about two feet above the ground. Female bird incubating.—ALEXANDER WALKER, *Mulino, Oregon*.

**Pigmy Owl in San Antonio Canyon, Los Angeles County, California.**—On December 29, 1913, a clear cool day, while hunting squirrels in San Antonio Canyon at an elevation of nearly 4500 feet, near Camp Baldy, I discovered one of these little owls. It was sitting on a bare branch of a sycamore tree and was apparently oblivious to my presence. The specimen was collected and proved to be an adult male *Glaucidium gnoma californicum*, in rather dark plumage. I searched faithfully through the trees near where I found this bird but failed to discover another. This is my first observation of this interesting little fellow, during the fifteen years that I have been about these mountains.—WRIGHT M. PIERCE, *Claremont, California*.

**Unusual Plumage of the Female Linnet.**—On November 2, 1913, being desirous of obtaining specimens of the Linnet (*Carpodacus mexicanus frontalis*) in fresh fall plumage, I shot ten birds at random out of two flocks, near Garnsey, Los Angeles County, California. Three were males and seven females. Of the seven in the streaked, female plumage, two show some red markings on throat, breast and rump. The natural assumption was that these were older birds than the others, acquiring in their maturity a trace of the brilliant plumage of the male, but dissection showed that though they were unquestionably females, they were, from the soft condition of the skulls, undoubtedly birds in first winter plumage, hatched some time during the previous spring or summer. Two fully adult females in the same series, birds of the previous year or older, show not a trace of red. I do not recall seeing in any of the published descriptions of the species mention of the occasional appearance of even a few red feathers in the female Linnet, nor have I ever before observed this condition in specimens handled.—H. S. SWARTH, *Museum of History Science and Art, Los Angeles, California*.

**The Undying Error.**—No more typical example of the persistence of error could be selected than that furnished by the publication and subsequent citation of the alleged nesting of the Black Cloud Swift (*Cypseloides niger borealis*) at Seattle. An ardent amateur, Mr. Matt H. Gormley, a member of a now defunct organization then known as "The Young Naturalists", found a bulky nest containing five white eggs in a warehouse on the Seattle waterfront, and reported it, with due pomp and circumstantiality, as the nest of the long-sought Black Swift. Appearing as it did in the venerated columns of the *Auk* (vol. v, 1888, pp. 424-425), the report met with ready acceptance and was copied far and wide.

Of course those whose natures are tinged with a wholesome skepticism soon made out that the nest in question belonged, not to the dashing tyrant of the skies, but to the more prosaic Purple Martin (*Progne subis*). So far as its author was concerned the mistake, albeit somewhat jejune, was a not altogether unnatural one, because the Martin as a resident of Washington was then very little known. Mr. Gormley at length discovered his own error and was so bored by it, and by the chaffing to which it subjected him, that the subject became tabu among his friends; but so far as known to the writer, he never took the trouble to make a public correction.

Major Bendire correctly diagnosed the case, upon a visit to Seattle in May, 1894, and published his opinion in the authoritative "Life Histories" (vol. II, 1895, p. 177). Yet here we have it in Mrs. Bailey's "Handbook of Birds of the Western United States" (Second Edition, Revised, 1904, p. 229): "Nest.—On cliffs or about buildings. One described by M. H. Gormley on the cornice of a building made of straws, chips, and horsehair, lined with green leaves and paper. Eggs: 5, white." Davie admits the record to his "Nests and Eggs of North American Birds", 3rd and 4th editions, but throws it out of the final 5th edition. Coues avoids the trap, as also does Reed in "North American Birds' Eggs"; but *miserabile dictu!* we find this in Ridgway's masterpiece ("Birds of North and Middle America", Part v, p. 703), under the generic heading *Nephoecetes*: "Nidification.—Nest in recesses among rocks or about buildings, composed of straw, feathers, leaves, bits of paper, etc., loosely put together and not held together by salivary secretion"—the pitiful undying error of the Gormley tradition!

One even suspects that this ancient virus has poisoned so classical a fount as the Cambridge Natural History. In Volume IX, "Birds", by A. H. Evans, page 423, we find the following (abridged) paragraph: "In *Cypseloides* \* \* \* *C. niger* of North America \* \* \* *C. rutilus* and *C. brunneitorques*. The genus ranges to Peru and Brazil. The nest, placed in holes in houses and so forth, is made of straw, leaves and rubbish; the eggs are four or five". But Ridgway expressly says of *Cypseloides* (from which he has separated our Black Swift under the name *Nephoecetes*): "Nest of *C. brunneitorques* composed of moss, shallow and compact, placed in dark culverts, near water (probably in rocky banks or cliffs also." No; the animus of the Evans paragraph is Gormley (*op. cit. ad. naus.*). We shall never see the last of it!—WILLIAM LEON DAWSON, Santa Barbara, California.

**Albino Anatids.**—In the store of Mr. Wm. Hackmeier, a well-known taxidermist of San Francisco, there is on exhibition a mounted specimen of a female albino White-fronted Goose. The specimen was sent in by a market hunter who killed it near Colusa, Colusa County, California, February 26, 1911. The general color is creamy white shading to light buff on the scapulars and primaries. The scapulars are light buff edged with creamy white. Two conspicuous characters help in identifying this specimen as belonging to the species *Anser albifrons gambeli*. One is the white area at the base of the bill, which, although not contrasting with the cream color of the head, is yet easily distinguishable. The other is the presence of five dusky brown feathers on the breast which give it the characteristic "speckle-belly" appearance. The specimen is in worn plumage. Mr. Hackmeier reports the bill as being "flesh color" and the feet as "pink". Measurements: Folded wing 39 millimeters; bill along culmen 43; tarsus 70.

A female albino Mallard Duck (*Anas platyrhynchos*) was recently presented to the California Museum of Vertebrate Zoology by Mr. George Thompson of Gridley, Butte County, California. The bird was shot by Mr. Thompson along with other ducks near Gridley on January 7, 1914. The entire plumage of the bird is white except for light brownish centers to some of the feathers of the breast, abdomen, and back of neck, and for brownish feathers on top of the head. According to Ridgway's *Color Standards* (1912), the bill is capucine-orange and the feet salmon-orange. Measurements are as follows: Total length 556 millimeters; folded wing 279; bill along culmen 53; tarsus 46.—H. C. BRYANT, *Museum of Vertebrate Zoology, University of California, Berkeley.*

# THE CONDOR

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Western Ornithology

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HARRY S. SWARTH, Associate Editor

J. EUGENE LAW }  
W. LEE CHAMBERS } Business Managers

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## EDITORIAL NOTES AND NEWS

The Business Managers of the Cooper Club, Messrs. Chambers and Law, have submitted to the two Divisions their financial statement for the year 1913. This statement includes itemized receipts and expenditures on both *Avifauna* and *Condor* accounts, an inventory of Cooper Club property, and a final appeal for continued and increased support on the part of all interested in the growth of western ornithology. The following abbreviation from this report will give an idea of the amount of work which now devolves upon our Business Managers, but which is essential to handling the Club's publications as they are now appearing.

Balance in Bank January 2, 1913.....	\$ 181.54
Dues received during 1913.....	844.09
Subscriptions during 1913.....	224.36
Advertisements.....	46.00
Donations.....	238.69
Sale of <i>Avifaunas</i> .....	52.75
Sale of back <i>Condors</i> .....	83.01

Total Receipts.....\$1670.44

Printing of <i>Condor</i> .....	\$ 646.25
Engraver's bill.....	133.14
Northern Division expenses.....	21.75
Southern Division expenses.....	27.98
On account conservation of game....	37.03
Postage.....	84.55
Purchase of back <i>Condors</i> .....	11.50
On <i>Avifauna</i> account.....	12.56
Sundry expenses.....	47.32

Total Expenditures.....\$1022.08

Balance on hand, January 2, 1914...\$ 648.36

From this deduct \$291.44, in *Avifauna* account, which leaves \$356.92; then add \$105.35 for 1912 bills paid during 1913, making \$462.27, the total amount in *Condor* fund. From this deduct the amount of advance dues and subscriptions (\$96.10), and 1913 bills payable (\$278.69), and there is left a net balance, or "profit" on the *Condor*, of \$87.48.

The printing of volume XV of the *Condor* cost \$60.73 more than volume XIV, while \$3.68 less was spent upon cuts. An edition of 1000 copies of each issue of the *Condor* was printed. *Avifauna* number 10, Swarth's "Distributional List of Arizona Birds", is now in press.

## COMMUNICATION

### REVIEWS AND JUST CRITICISM

Editor THE CONDOR:

I am a far-off, perhaps unheard of—so to speak—member of the Cooper Club; but it is my Club, and to me it means more than any of the other organizations of its kind of which I am a member—all because eight of the best years of my life were spent in the Land of the Golden West. Just what my rights as a member of the Cooper Club may be to criticise the reviews in its Organ, THE CONDOR, I do not stop to ask; but as a member of Society, in general, and especially as a member of that small portion of supposed Goodfellows, banded together under the name of Nature Students, I have the moral right to ask regarding that which, to me, seems undesirable, and, especially so, when that same is printed matter which goes forth to the world and becomes a living record.

Does that portion of the review regarding Bruce Horsfall's plate of the Catbird, signed W. L. D., page 236, volume 15, November issue of THE CONDOR, sound like brotherly love? Has it any of that milk of human kindness, as such, making THE CONDOR a medium of good fellowship?

I know neither Mr. Horsfall nor W. L. D., only as they have come on record in print; but even if all that is said be true, could it not have been said in a kind way? Why not a plain, honest statement, even though cruel in its frankness, instead of a flippant thrust carrying with it a personal tang? Why could it not have been a good clean review, such as the one given of *The Birds of Virginia*? For that was, indeed, most necessary and just.

There is no stimulus to my life's work like study and communion with nature. From the fundamentals to the last integral parts of design, my profession is a logical sequence along lines of evolution, based on the primal laws of creation. With this knowledge, I have learned to feel that all who turn to nature seriously, do, of necessity, set themselves apart from the proletariat, are bigger and better in thought, more susceptible of sympathy, no matter what their walk in life. Then, if so, is Mr. Horsfall one to be encouraged in the right way, by

a clean hand of criticism and good fellowship stretched across the intervening States?

*Humanum est errare.*

With sincerity and honesty of purpose, I remain,

Most respectfully,

A. O. TREGANZA.

Salt Lake City, Utah, January, 7, 1914.

## PUBLICATIONS REVIEWED

THE BIRDS OF CONNECTICUT. By JOHN HALL SAGE and LOUIS BENNETT BISHOP, assisted by WALTER PARKS BLISS. [= State of Connecticut, Public Document No. 47. State Geological and Natural History Survey Bulletin No. 20. 1913. Pp. 1-370.]

The authors' names are sufficient assurance of the general excellence of this, the latest state list of birds to make its appearance. Under each species is uniformly careful and methodical entry of data pertaining to the various phases of the subject here considered, a general statement of the status of the bird within the state, followed by migration dates, particulars of nesting sites and dates, unusual records, and such additional comments as seem to be called for. About half the book is taken up by the introduction and the body of the list. The remainder of the volume is occupied by various appendices to part one—a catalogue of introduced species and those of doubtful standing, a statistical summary, list of observers, and bibliography—and by part two, a treatise on the economic ornithology of the region, compiled by Dr. Bishop.

A summary of the list gives a total of 334 species for the state, divided as follows: residents, 80, summer residents, 78, winter residents, 38, transient visitors, 124, accidental visitors, 89. The long list of accidentals, second only to the transients in numbers, is probably one result of the host of observers enlisted in furtherance of the work, the catalogue of whose names occupies nearly four pages.

The portion of the report treating of the economic aspect of the subject is largely a judicious compilation of data pertaining to species occurring in Connecticut, and is undoubtedly an accurate portrayal of the relations of these birds to their surroundings. In fact the whole book strikes one as an eminently "solid" and dependable piece of work. The authors' attitude toward questionable records, well illustrated in the introduction in their protest against the acceptance of "operaglass" records of rare or unusual species, as well as in other matters, would be calculated to inspire confidence in their statements, even without a knowledge of their previous years of brilliant accomplishment in the field of ornithology.—H. S. SWARTH.

AN ACCOUNT OF THE BIRDS AND MAMMALS OF THE SAN JACINTO AREA OF SOUTHERN CALIFORNIA, WITH REMARKS UPON THE BEHAVIOR OF GEOGRAPHIC RACES ON THE MARGINS OF THEIR HABITATS. By J. GRINNELL and H. S. SWARTH (Univ. Calif. Publ. Zool., vol. 10, October 31, 1913, pp. 197-406, pls. 6-10, 3 text figs.).

In this comprehensive paper of 210 pages, are clearly set forth the results of a summer's reconnaissance in and about the San Jacinto Mountains, undertaken in 1908 by the newly organized staff of the Museum of Vertebrate Zoology. The report embodies the work of two field parties, each of several members, the one which was headed by the authors maintained from the 18th of May to the 5th of September; and the other, under Messrs. Taylor and Richardson, from the 1st of May till July 12th. Both because of the wide experience of the leaders and the industry of their helpers, a large amount of museum material (including 1533 bird skins) was secured, and a fairly exhaustive survey was made of this interesting and topographically well-defined area. The report itself is notable as a piece of scholarly workmanship; and so far as method, accuracy, and lucidity are concerned, is unquestionably a model of its kind.

After a careful description of localities or base camps, and a brief exposition of the ecological elements involved, there appears a check-list of 169 species of birds encountered in the course of the season, followed by a carefully annotated account of the birds themselves. While each account aims primarily to summarize the status of the species from a taxonomic and ecological view point, a gratifying amount of biographical material is introduced, and our demand to know the most possible about the lesser known is commendably satisfied. Thus, we have, quite appropriately, a mere half-page devoted to the well-known Audubon Warbler, as against six pages given to the Gray Vireo, a bird about which we are still very curious.

In like manner also, the mammals, of 63 forms, are listed and described.

From a taxonomic standpoint this paper gives much ground for satisfaction, and leaves little to be desired. To our distinct relief there are no new forms described, not even a sub-species. Better than that, the abundant material secured enables the authors definitely to discredit, at least as birds of California, several alleged varieties which have hitherto cumbered our check-lists: *Oreortyx picta confinis*, *Aphelocoma californica obscura*, *Vireo vicinior californicus*, and *Sialia mexicana anabelae*. Most astonishing of all, the Gray Flycatcher, *Empidonax griseus*, which used to bulk so large in south-

ern California (as a producer of much desired and expensive eggs), and which filled four pages of Mr. Grinnell's San Bernardino report, has dwindled to a mere mention of four nondescripts caught during migration. "The collection includes four small flycatchers taken near Cabezon at the northern base of the mountains which we have, with some hesitation, placed in a different category from the breeding *E. wrighti* of the higher elevations". *E. wrighti*, on the basis of 36 specimens, is conceded to be the breeding bird of the San Jacinto Mountains. "Apparently nothing is known of the nesting habits of *E. griseus*, the published breeding ranges being mere general statements with no precise data to support them." There be those of us who know what a pang this acknowledgment costs the authors of the San Jacinto report, and precisely on this account we honor their scholarly integrity,—an integrity which depends first of all upon a willingness to face the facts.

We have here renewed evidence of able, trustworthy leadership, and we are prepared to give, henceforth, an even more implicit obedience to Grinnell and Swarth's taxonomic decrees.

Several interesting cases of overlapping or interpenetrating faunæ are brought to light; thus, Cactus Woodpecker, *Dryobates scalaris cactophilus*, a characteristic Colorado Desert form, is discovered at Vallevista at the Pacific base of the mountains. While the Desert Quail (*Lophortyx gambeli*) halts circumspectly at the edge of the desert, the Valley Quail (*L. californica vallicola*) spills out of its chaparral and mingles freely with its congeners. In general, the San Diegan Pacific species are more presuming than their kinsfolk; for the Anthony Towhee, *P. crissalis senicula*, overlaps *P. aberti*, and *P. m. megalonyx*, an Upper Sonoran species, coquettes with the open places. The most notable example of all, however, is furnished by the San Diego Song Sparrow, *Melospiza m. cooperi*, which Messrs. Grinnell and Swarth found firmly established amid desert surroundings (albeit with local riparian associations) in lower Palm Canyon. These and similar occurrences among the mammals lead the authors to philosophize upon "The Behavior of Geographic Races on the Margins of their Habitats". The conclusions reached are sound ones, and present fascinating vistas of suggestion, but their adequate consideration is beyond our present space.

An excellent table of comparisons between the boreal faunæ of San Jacinto Peak and related mountain masses to the northward is presented and certain conclusions reached which are stated in the form of laws. It will

be, perhaps, of as great interest to those who do not have access to this paper, to compare the San Jacinto area broadly with the San Bernardino Mountain district, already so carefully studied by Mr. Grinnell\*. The present paper reports 169 species as against 139 for the San Bernardino area. Of these, 42 were not found at all in the San Bernardino Mountains; but when we have eliminated migrants, casuals, and species common to the desert base of both ranges, as well as those which, through lack of opportunity or completeness of observation, rather than by reason of actual difference in geographical range, were not reported from the San Bernardino Range, we find only two species, *Virco vicinior* and *Polioptila californica*, which do not venture north of the San Jacintos.

On the other hand, although the San Bernardino list contains only 12 names which do not appear in the present list, 7 of these are significant as being those of species not known to breed as far south as the San Jacinto Range. They are: *Otus flammeolus*, *Chordeiles virginianus hesperis*, *Amphispiza nevadensis canescens*, *Hylocichla guttata sequoiensis*, *Planesticus migratorius propinquus*, *Sialia currucoides*, and *Myadestes townsendi*. It is notable that four of these should be Upper Transition and Boreal Turdines, which thus find on the flanks of "Grayback", San Jacinto's elder and more favored brother, their southernmost Pacific breeding station. It is not impossible that the Townsend Solitaire may yet be found on San Jacinto, but the remaining three are certainly absent.

This San Jacinto bird-book, as it deserves to be called, is a mine of information for the bird student, from whatever angle it is viewed. It is so good, that one who loves birds better than he does bird-skins cannot help wishing that half as many bird-skins might have served these insatiable scientists, so that there would have been time left to observe and to record more life-histories. It is not enough to say, "Let others do that", for there are not in the West two other more gifted observers of birds than Messrs. Swarth and Grinnell. Of Mr. Grinnell, especially, I cannot forbear to say that some of his recent biographical sketches evince a keenness of insight, and bring out a wealth of first-hand information which mark him as potentially the foremost biographer of Western birds. We learn from this volume that the authors took seventeen "specimens" of the Gray Virco; yet I submit that the six-page biography is worth sixteen of them. Twenty-six specimens of the Black-chinned Sparrow

\* "The Biota of the San Bernardino Mountains", by Joseph Grinnell (Univ. Calif. Publ. Zool. vol. 5, December 31, 1908, pp. 1-170, pls. 1-24).

will be eventually consulted by two or three specialists, but a four-page biography in place of two might have gladdened twenty-six hundred readers. Sixty specimens of the Sierra Juuco! Is human life (not to mention bird life) worth so little?

In like manner, we should have been delighted with a fuller series of photographs to illustrate the constant references to "associations" and botanical as well as topographical features, if these ardent mummifiers of 37 Costa Hummers and 38 Audubon Warblers and 51 Western Bluebirds could have spared the time from these mortuary rites. The half dozen photographs which are shown are excellently chosen, and greatly enhance the interest of the text, as do the map and preface diagram.

Of minor criticisms none offer which reflect in any degree upon the accuracy or wholesomeness or scientific worth of this finished contribution to knowledge. The reviewer deprecates the use of lower case letters for the vernacular names of birds, as being not only ungrammatical and vague, but ill-proportioned and offensive to the eye. Witness this from page 292: "The warbling, Cassin and Hutton vireos are arboreal foragers"; or this cryptogram: "but the least is riparian, while the gray is distinctly a dry-slope forager". Also the reviewer is of those who resent the attempted change of the long-established and logical term "summer resident" in favor of "summer visitant". If a bird does not reside where she rears her young, then she has no home or country. Am I only a "winter visitant" at Santa Barbara, because I spend four months at home and eight, or thereabouts, afield? The State holds otherwise and so does common sense. *Aber hoch der San Jacinto Report!*—W. L. DAWSON.

## MINUTES OF COOPER CLUB MEETINGS

### SOUTHERN DIVISION

DECEMBER.—The regular meeting of the Southern Division of the Club was held at the Museum of History, Science, and Art, Thursday evening, December 18, 1913, with President Law in the chair. Those present were Messrs. Brown, Chambers, Daggett, Grey, Law, Miller, Morcom, Rich, Swarth, Willett, Wood, and Wyman. Fordyce Grinnell, Jr., was a visitor. The minutes of the November meeting were read and approved, followed by the reading of the Northern Division November minutes. New members were elected as follows: F. R. Decker, Pross-

er, Washington; G. H. Lings, Nyack, New York; Edwin S. Parker, Berkeley; P. C. Dutton, Stone Staffs, England. One new name was proposed: Finlay Simmons, Houston, Texas, presented by W. Lee Chambers. The election of new members by the Northern Division, as given in the minutes of the November meeting, was ratified by vote of this division.

The action of the Northern Division in regard to questions arisen in connection with the Pacific Association of Scientific Societies, was approved, as it was evident that the Southern Division would be unable to participate in a meeting held at Seattle. The dues of the Club to the Association were ordered paid.

Nominations for officers of the Division for 1914 were now in order. The present incumbents (President, J. Eugene Law; Vice-president, Howard Robertson; Secretary, H. S. Swarth) were placed in nomination by F. S. Daggett, seconded by L. E. Wyman. After some discussion the nominations were declared closed.

Mr. F. Grinnell showed some photographs of California naturalists, including a likeness of one of the Club's honorary members, Lyman Belding, taken in 1882, at a time when he was doing much active bird work within the state. Mr. Miller exhibited a skin of the Slender-billed Shearwater (*Puffinus tenuirostris*) recently taken by himself at Hyperion Beach, Los Angeles County, the second record for southern California. Adjourned.—H. S. SWARTH, *Secretary*.

JANUARY.—The January meeting of the Southern Division of the Cooper Ornithological Club was held at the Museum of History, Science and Art, Thursday evening, January 29, 1914, with President Law in the chair, and the following members present. Mrs. E. H. Husher, and Messrs. Blain, Chambers, Daggett, Dial, Edwards, Eggleston, Esterly, Grey, Judson, Law, Layne, Morcom, Rich, Robertson, Snyder, Swarth, Wood, and Wyman. Visitors in attendance were Mrs. Minerva J. Fargo, and Miss Wood.

The Southern Division minutes for December were read and approved, followed by the Northern Division minutes for the December and January meetings. One new member was elected, Mr. Finlay Simmons, of Houston, Texas. New names proposed were: Mrs. Minerva J. Fargo, of Los Angeles, and Miss Ada Wilson, of Pasadena, presented by Mrs. E. H. Husher; C. G. Stivers, of Los Angeles, and L. R. Reynolds, of San Francisco, by J. Grinnell; Miss Helen Powell, Berkeley, by W. F. Bade; Miss Etta V. Little, Los Angeles, by H. C. Bryant; Luther Little, Los

Angeles, by M. W. Blain. Resignations were read and accepted, of E. Boyer, A. G. Ulrich, F. O. Pilsbury, and C. W. Bowles.

Election of officers of the Division for 1914 gave the following results: President, J. Eugene Law; Vice-president, Howard Robertson; Secretary, H. S. Swarth. A communication from Mr. W. L. Dawson, tendering his services to the Club for a lantern slide lecture some time in February, was received with the greatest enthusiasm, and the secretary was instructed to make the necessary arrangements. Members of the Audubon Society who were present suggested that it be made a joint affair of the two societies, and it was so ordered.

A letter was read, written by Joseph Dixon and addressed to Mr. Grinnell, containing an intensely interesting account of the vicissitudes of his party in Arctic Alaska before their final safe installation in winter quarters. The letter was brought overland by certain members of the expedition, and took over three months in reaching its destination.

Mrs. Husher announced that in future the Los Angeles Audubon Society would hold its meetings the third Thursday of each month, the place of meeting being the Hotel Clark, on Hill Street, between Fifth and Sixth. Meetings will be held at 3 p. m. Mr. George Wood spoke briefly of certain game and other animals of northern Arizona, as observed by him in the mountains near Kingman and Prescott.

Although a mishap to the lighting system of the portion of the city in which the Museum is situated forced the meeting to be held "by yellow candle light", the only curtailment of the program was the forced omission of the inspection of the Museum building and exhibits, with which the meetings usually close. Adjourned.—H. S. SWARTH, *Secretary*.

#### NORTHERN DIVISION

DECEMBER.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, California, Thursday evening, December 18, 1913. President Carriger was in the chair with the following members present: Mesdames Allen and Grinnell, Miss Swezy, and Messrs. Bryant, Camp, Grinnell, Heinemann, Lastreto, Parker, Ray, Shelton, and Storer. Miss Gertrude Goldsmith and Messrs. F. Martens and Otto Plath were present as visitors. The Northern Division minutes for November were read and approved followed by the reading of the Southern Division minutes for November.

Miss Powell and Messrs. Pope, Reynolds, and Stover were elected to membership. The following were nominated for membership; from the Northern Division: Miss Etta V. Little, 229 S. Los Angeles St., Los Angeles, California, proposed by H. C. Bryant; from the Southern Division: F. R. Decker, Prosser, Washington, and G. H. Lings, Nyack, New York, both proposed by W. Lee Chambers. The resignation of Mr. Charles W. Bowles was accepted.

A communication from Mr. A. L. Cowell of the Bureau of Conventions and Societies of the Panama-Pacific International Exposition was read, expressing interest in the action of the Club toward promoting a Conservation Congress.

Nominations of officers for the Northern Division in 1914 were as follows: President, Harold C. Bryant; Vice-President, Chase Littlejohn; Secretary, Tracy I. Storer.

Mr. Alfred Shelton presented the paper of the evening, entitled, "Birds of the Northwestern Coast Counties of California". Mr. Shelton was a member of an expedition sent out by the Museum of Vertebrate Zoology through the region mentioned, during the past summer and paid particular attention to the birds. In the paper Mr. Shelton first gave brief descriptions of the localities visited by the party, and then some of the interesting records and observations were related. Adjourned.—TRACY I. STORER, *Secretary*.

JANUARY.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, California, Thursday evening, January 15, 1914, at 8 o'clock. Vice-President Bryant was in the chair with the following members present: Mrs. Grinnell, Messrs. Grinnell, Parker, Rankin, Shelton, Silliman, and Storer. Miss Goldsmith and Messrs. Lee R. Dice and Arthur Folger were present as visitors. The minutes of the Northern Division for December, 1913, were read and approved followed by the reading of the minutes of the Southern Division for the same month.

It was moved, seconded, and carried that the Secretary cast the unanimous ballot of those present electing those nominated at the December meeting as the officers for the current year. Miss Etta V. Little and Messrs. F. R. Decker and G. H. Lings were elected to membership. The application of Mr. Finlay Simmons, Houston, Texas, proposed by W. Lee Chambers was read.

Mr. A. C. Chandler delivered the paper of the evening, his subject being, "Some interesting facts about feathers." Adjourned.—TRACY I. STORER, *Secretary*.

**For Sale, Exchange and Want Column.**—In this space members of the Cooper Club are allowed one notice in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, *Eagle Rock, Los Angeles County, California*.

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**OVERFLOW** list of your duplicates wanted as follows: Random Notes on Nat. Hist. I, 2, 3; II, 12; III, 5, 6, 10, 11. Oregon Naturalist [=Naturalist, Oregon City] I, 12 (Nov.-Dec., 1894). Field and Forest I, 5, 6; II, 5, 6, 7; III, 3, 4, 6, 9, 10, 11, 12. Parts or volumes of these: Amer. Osprey, Ky. Bittern, Canisteo, N. Y.; Canadian Sportsman and Naturalist; Collectors Monthly; Forest and Field, N. Y.; Hawkeye O. & O.; Hoosier Nat.; Hummer; Loon; Maine O. & O.; Naturalist & Tax.; Observer I, 4, and Audubon Magazine II, 2.—DR. BRAISLIN, 556 Washington Ave., Brooklyn, N. Y.

**FOR EXCHANGE.**—Have many personally taken sets of British eggs, chiefly of the commoner species, which I shall be pleased to exchange for American sets. Correspondence invited.—P. C. DUTTON, 26 Lichfield Road, Stone Staffs, England.

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**WANTED.**—Nidologist, vol. I, nos. 1, 2, 5, 8; vols. II, 11; Osprey, vol. III, 7.—O. WIDMANN, 5105 Von Versen Ave., St. Louis, Mo.

**FOR SALE.**—Charles Bendire's "Histories of North American Birds"; in two volumes, original binding, and in good condition: \$12.00.—H. M. MILLER, 5928 Hays Ave., Los Angeles, Calif.

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A Magazine of Western  
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Volume XVI

May-June, 1914

Number 3



COOPER ORNITHOLOGICAL CLUB



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# THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XVI

May-June, 1914

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## THE COOPER CLUB MEMBER AND SCIENTIFIC WORK\*

By HAROLD C. BRYANT

AT THE END of each year the merchant takes an inventory of his stock and makes plans for future business. In the same way, it seems to me, such an organization as the Cooper Ornithological Club can well afford to take the time to consider in review its accomplishments of the preceding year and to outline its policies for the coming year. It is therefore fitting that tonight we should look into the past, estimate where we stand at the present, and with the data from these two sources as a foundation, formulate working plans for the future.

We cannot pride ourselves on being an old organization, for we will only have reached our majority next June. It was on June 22, 1893, that four youthful but earnest bird students met in San Jose and organized the Cooper Ornithological Club, naming the organization after that pioneer student of birds in California, Dr. J. G. Cooper. The charter members were W. H. Osgood, H. R. Painton, Chester Barlow and F. A. Schneider, the four constituting the first officers of the Club. By the end of the first year the Club's membership numbered twenty-five. "The Nidiologist", an amateur bird magazine, several numbers of which had already appeared under the editorship of Harry R. Taylor, formerly of Alameda, was taken over as the official organ. In 1897 the "Nid" suspended publication, and it was not until a year later that the first "Bulletin" of the Cooper Club was issued. During the interim "The Osprey", another amateur ornithological magazine, issued at Galesburg, Illinois, was used as the publishing medium of the Club, the notes being edited by D. A. Cohen. After a year the "Bulletin" of the Cooper Ornithological Club was named THE CONDOR, and under this name is now well known as a magazine of western ornithology.

In 1894 members of the Club residing in southern California obtained per-

\*President's address, delivered at Northern Division meeting, Cooper Ornithological Club, March 19, 1914.

mission to hold separate meetings in their locality. For a time the southern organization was known as the "Annex", but has latterly been known as the Southern Division. One need only point to the harmony that has always existed between these two really separate organizations to show the character of the membership of the Cooper Ornithological Club. The jealousy and attendant ill feeling that so often exists under similar circumstances has been almost wholly absent.

The worth of a thing is often proved by testing it. The loyalty of Cooper Club members was put to the test in the early days. It was some of the younger members, who, against the protest of the more conservative, dared to start the publication of a bulletin. It was the same young contingent which through the years of 1899-1901 helped to make up the cash deficit resulting from the small membership roll in those initial years.

Such then were the beginnings. Now as to our present status: We have a membership at the present time of 439. Nor is our membership limited to California, for we have representatives living in all the principal countries of the world. The centralization of activities is shared by two divisions, one in southern California with meetings held each month in Los Angeles, at the Museum of History, Science and Art, and the other in the San Francisco Bay region, with monthly meetings held at the Museum of Vertebrate Zoology in Berkeley. A bi-monthly periodical, *THE CONDOR*, is published, which last year totaled 246 pages for the volume and which we are told by naturalists abroad, is not excelled in general worth by any other ornithological paper of its class.

The purposes of the Cooper Ornithological Club as stated on its official letter-heads are as follows:

- For the observation and co-operative study of Birds, because of the resulting pleasure;
- For the spread of interest in Bird Study, so that this pleasure may be shared by others;
- For the conservation of Birds and Wild-life in general, for the sake of the future;
- For the publication of Ornithological Knowledge, as being a contribution to Science.

These then are our ideals. Every member should be acquainted with these ideals and do his best to further them, or else the Club fails of its objects. I am sorry that I cannot discuss each one of the four. This being impossible, I have done the next best thing and attempted to treat in detail of one phase of the work of the Club. It deals perhaps more closely with the last named object—the publication of ornithological knowledge as being a contribution to science, but it has ramifications which necessarily include the other objects above mentioned. It is on the Cooper Club member in relation to scientific work that I wish to speak.

If we follow the general trend of the research work carried on by members here in California we find that it can be classified as follows:

1. Collecting of bird skins, nests, and eggs.
2. Preparation of local lists.
3. Recording of field observations, such as migration and nesting dates, and habits.
4. Systematic descriptions of new species and races and systematic position of groups.
5. Photography.
6. Faunistics, or the study of distribution.
7. Economic investigations.
8. Conservation of wild-life.

This sequence is a natural one. "It is characteristic of the progress of research that as one proceeds the horizon widens and new questions spring up in the pathway of the investigator." I should say also that it is a progressive one. By that I do not mean that the former problems have been solved or that these first ones were of less importance, but that more difficult ones have been discovered and given prominence. It is because of this very progressivism that scientists the world over are so optimistic.

It has been an evolutionary trend, a trend from work requiring little skill or coming to the individual most naturally, to work requiring more skill and more concentration of purpose. Let us pass in review some of these problems which have interested and are interesting members of the Cooper Club.

Collecting specimens naturally formed the foundation on which the more advanced work has been accomplished. In the early days collecting was of the desultory type. An egg or two from a nest, with little or no recorded data, was sufficient to give the oologist a standing. Now not only is the whole set considered requisite, but in critical cases a parent bird and the nest as well, is preserved along with fully written notes as to circumstances, exact location, date and collector. A specimen or two of each species of bird was sufficient for the early collector. A *series* of each of the more interesting species or of a particular group is now the ideal. As in other sciences the time for specialization has arrived. It is now no longer worth while for the younger member of the Cooper Club who is beginning to collect, to build up a collection of all of the birds of the state, or of the eggs of all of the birds of the state. Rather should the attempt be made to restrict collecting to a particular group in which the student is interested and is likely to be able to contribute actually new knowledge. The aim should no longer be *quantity* but *quality*.

The study of plumage cycles forms a field almost wholly neglected. We do not know the sequence of plumages even of some of our commonest ducks. Let the collector of bird skins specialize, therefore, and, by obtaining a complete series, place before us the information necessary to fill in this gap in our knowledge.

The variation in size, shape, color and color pattern of the eggs of a particular group of birds furnishes an intricate problem and one worthy of more attention than it has as yet received. Nor have we exhausted the possibilities as regards the finding of yet undiscovered nests and eggs. The nest and eggs of the Harlequin Duck, Saw-whet Owl, and Crossbill have never been taken in California, although these species are known to breed within the state.

Here then are two important problems which claim the attention of him who follows that instinct which is so strong in most of us, that of making collections, be they of birds, birds' nests, or birds' eggs, or all three.

If there is anything in our work that we have possibly overdone, it is the plain faunal list. No worker in ornithology will for an instant underestimate the value of the faunal list. Nevertheless, he must admit that the value of such a list increases in proportion to the annotations. The mere locality list of species is of prime importance only when it comes from new localities, and not all of us are able to seek out such. The annotated list, on the other hand, seldom affords a duplication and always offers a comparison of life-history notes. It also has historical value, for it usually affords basis sooner or later for a study in the change in the status of birds. AVIFAUNAS of the type of Willett's "Birds of the Pacific Slope of Southern California" and Tyler's "Birds of the Fresno District" must be held up as models of the kind of work

most needed. They give authoritative facts about the birds of the district treated, and are extremely useful. Such AVIFAUNAS should be printed in large enough numbers so that they can be furnished to every interested school teacher and student of birds in the district covered.

In spite of the fact that the recording of field observations, such as migration and nesting dates, has been carried on systematically by some of our members since the formation of the Club, yet it is astonishing to find how limited our knowledge of the life-histories of many of our native birds really is. This has been especially apparent to me as I have, during the past year, attempted to obtain information on the life-histories of our game birds. The first striking discovery was the extremely small amount of detailed facts on record; the second was the lack of specific information where it was most needed. To illustrate: An attempt was made to assemble statistics as regards the nesting dates of the California Valley Quail, to serve as a basis for correctly placing the open season. When on the track of records I would repeatedly run across such statements as "during the summer, while working in a hay-field I discovered five quail nests". In such a statement three important details are lacking,—the exact species, the exact date, and the exact locality.

We find, therefore, that we have not yet discovered very much of what birds do. Even though we see far enough ahead to know that our next step will be to find out *why* they do certain things, yet it is well that we still emphasize the gathering of those facts which must act as a foundation for more advanced problems. We have not outgrown this phase of our activity and we never will. We should, on the other hand, more largely emphasize it during the coming years and, above all, improve the accuracy and compass of notes taken and recorded.

In spite of the fundamental need for the services of the man who attempts to put in systematic order our knowledge of the relationships of birds, the old type of systematist is passing away. Apparently the lure of modern biological problems, in which the immediate bearing is more clearly seen, deters many from remaining in this field. The man who improves our classification and nomenclature lays the foundation without which the so-called higher types of investigation cannot be carried on. Just one case in point: The present trend of investigation on the origin of species,—the problem which has longest interested the biologist,—toward the isolation theory awaits a more dependable classification of animals at the hand of the acute systematist at this very moment. We may have come to the point where the description of a new species is seldom justified; but the extent of variation, intergradation, and geographical distribution of our different species furnishes problems to the systematist that are most important. Biologists are describing about 10,000 new forms annually. Whatever may be said as to the advisability of such a proceeding, it gives us an idea as to what an immense field the biologist has in which to work.

We are at the present time seeing just the beginning of a new science which deals with the relation of animals to their environment, and this science we call ecology. The ecologist must necessarily depend almost entirely upon the systematist for workable material. Here then is a plea for men who are willing to remain below ground, as it were, out of the light while they lay the foundation. Current recognition may not give due credit to the systematist, but time will prove the worth of his service.

Of recent years a new type of naturalist has joined our ranks, namely, the

camera hunter, or more properly, the hunter with a camera. It is needless to point out that nothing has been more useful in promoting interest in and diffusing knowledge about birds than the photograph. Many a reader of a magazine, be it ornithological or otherwise, will imbibe what knowledge he can by looking at the pictures even though he never takes time to read a text description. Pictures leave a more lasting impression than does descriptive writing. Let me also call to your attention the fact that good photographs are practically as reliable in establishing records as are skins. Read Dawson's "Identification by Camera" and see the accompanying photographs in the November-December CONDOR, if you want to be convinced. Ray and Heinemann's Pine Grosbeak photographs are really much more valuable in establishing the breeding record of this bird than the nest and eggs themselves, for whereas the original nest and eggs can only be seen by a few people at most, and will ultimately be lost or destroyed, the photographs have convincingly demonstrated the record to thousands and will in the end be more permanent. The life-history-of-the-sharp-shinned-hawk series which appeared in the last CONDOR is another beautiful example of valuable photographic work. There is no reason why a rare collection of negatives should not be just as valuable, if not of actually much more value, than a collection of skins or eggs. The one drawback to the collecting of photographs appears to be the expense attached thereto. However, the day is not far distant when even those in more humble circumstances will be able to indulge, for already the brave are making their own Graflex and Reflex cameras.

The economic phase of ornithology has been largely neglected by Cooper Club members. This is especially evident when we view the work of the United States Biological Survey and then inspect the meagre notes to be found in our western publications. This Bureau of the United States Department of Agriculture has within the last seventeen years examined the stomachs of nearly 75,000 birds and tabulated the contents found, and has published 135 documents relating wholly or in part to the food of birds. Somehow at this day and age the convincing value of a live bird lies in its usefulness. This usefulness is computed on its food habits and the consequent value to the agriculturist. Doubtless this point of view is exaggerated and the other real value,—the esthetic,—is left in the background; but we must meet the demands of the times.

What do birds eat? Observation says that the Western Meadowlark eats grain almost exclusively. Stomach examination shows that this bird eats insects almost exclusively except during the time when the numbers of insects are at a minimum. Casual observation and inferential reasoning says that the Roadrunner eats the eggs and young of quail and other birds. Stomach examination of over twenty-five of these birds taken in localities from which complaint comes has failed to disclose a feather or an egg-shell.

Ducks have been slaughtered by the millions in California and yet when the man who desires to propagate ducks wants to know of what their food in the wild is made up, the answer must be given in general rather than specific terms: "largely vegetable—seeds and grasses". But of what kinds?

Is it not more important just at the present time to know what birds *eat* than when they arrive, how they act, or how many eggs they lay? The farmer wants to know what the Barn Owl's average catch of gophers is, whether the number of insects destroyed by the Western Meadowlark will more than coun-

terbalance the damage caused to sprouting grain, and whether the grosbeak can pay for the fruit destroyed by its destruction of scale and other insects.

If we are to meet the demands of the day, therefore, we must concentrate some of our energy on the solution of the economic problems connected with birds. The collector should by all means save stomachs and so doubly justify the killing of the birds collected.

Nor is the food habits of birds the only economic problem. The fast disappearance of our game birds is creating a loss to the state that is not fully appreciated at the present time. It took many years to successfully arouse public opinion in regard to another of our natural resources, forests. It may take a similar period of time to draw proper attention to the need for the conservation of our wild life, but it must be done. Every member of the Cooper Ornithological Club should be an active conservationist, for upon whom can the burden be shifted? Surely not upon those who take no active interest in bird-life. Those who are intimately acquainted with the facts must not only be the experts with the evidence but must be the prime movers in an active campaign to preserve the relatively scanty remnant of wild-life which is left.

I am glad to be able to recall to your attention that the Cooper Club has during the past year taken a definite and active stand for the conservation of wild-life. Growing out of the appointment of a committee on conservation by the Northern Division, one of our members, Mr. Walter P. Taylor, was instrumental in organizing the California Associated Societies for the Conservation of Wild Life, of which the Cooper Club is now a member. Not only did much of the time and energy of some of our members go into the recent campaign but also some of our funds. As a result, this associated society has been able to bind together about 10,000 persons who are pledged to carry on a campaign of education and to stimulate legislation in behalf of this great natural asset. The recent campaign waged during the last session of the state legislature, although somewhat disappointing, has certainly showed us the enemy in all his strength. We are therefore in a better position to renew the attack and to carry it to a finally successful issue.

I have now pointed out some of our achievements and attempted to show their relative merit. If I should go still farther and attempt to prophesy as to the future scientific work of the Club, I would say that it will be largely characterized by the use of the experimental method. The present-day trend of biology is in that direction and it is to be expected that ornithologists will follow this lead. Another reason why this method is going to be used in the future is because we have come up against that big question,—why do birds do this and why do birds do that;—and the only logical way of attacking that problem is to use the experimental method.

One does not need a laboratory nor even apparatus in order to perform an experiment. Nor is it necessary to keep the birds experimented upon in captivity. In the laboratory of nature may be found both subject and apparatus. However, there rests on the performer of the experiment the duty of furnishing the originality and foresight demanded and the ingenuity to be used in the arrangement of controls. The road which leads to a better knowledge of life-histories and the mysteries of migration is to be built upon experimental method.

Workers in science are often justly criticized because they seldom make the product of their endeavor available to the general reader. The populari-

zation of science will still further justify it. In our own case, it is the one fundamental way of attaining our second ideal—the spread of interest in bird study. Why truths must be couched in language that only a few can understand is incomprehensible. If it is necessary that scientific treatises on birds be of a technical nature then they should be paralleled in every case with a popular account. The spread of interest in bird study comes from such popular accounts and not from technical reports framed by and for the specialist.

In conclusion let me suggest that, if you have not done so, you add to the simple pleasure that comes to you through bird study the scientific spirit which urges us to use scientific method in our work. The aim of the scientist is to make “durable, trustworthy records of natural phenomena.” The method, according to Minot, is first to record truly everything dealing with the phenomenon itself. Here is work for the amateur. Second, to verify and correlate the personal knowledges until they acquire impersonal validity. Here is work for the professional. I hope, therefore, that in this review each member has been able to recognize a niche suited to his personal ability and inclination, in which to work and to become useful in the gathering of facts concerning wild-life. Just as soon as you find such a place to work, and adopt such ideals towards which to strive, just so soon you become a scientist in the true sense of the word and as a result become a more useful member of the Cooper Ornithological Club.

Let me close with this quotation of Coward's from his “Migration of Birds”, as an added inspiration to do productive scientific work: “But putting aside economic and utilitarian considerations there is to some of us a greater stimulus to solve the problems of nature. With the birds, and the insects and plants upon which they feed, we share a common heritage, and the more we learn of the life of these, our fellow-workers, the nearer we approach solution of the great riddle of the Universe, the mysterious law-abiding scheme of Nature. The book of knowledge to which we add some iota is marred with mystery, superstition and error, but each proved fact cleans its pages. ‘Facts’, says Laing, ‘are the spokes of the ladder by which we climb from earth to heaven.’ ”

*Museum of Vertebrate Zoology, Berkeley, California, March 19, 1914.*

## BIRD NOTES FROM NETARTS BAY, OREGON

By STANLEY G. JEWETT

WITH FIVE PHOTOGRAPHS BY O. J. MURIE

THE FOLLOWING notes were taken at Netarts Bay and along the seacoast north of Netarts postoffice to Cape Meares Lighthouse, in Tillamook County, Oregon, during four visits to that locality for the purpose of collecting specimens and securing data on the birds found along that part of the Oregon coast. This work has been carried on by the Oregon Fish and Game Commission under the direction of William L. Finley, State Game Warden. The plan is to make a thorough biological survey of the state and build up a careful scientific collection of birds and mammals.

The first visit, September 1st to September 11th, 1912, Mr. M. E. Peck, of Willamette University, Oregon, and I were in the field continually for ten

days. The second trip, December 27, 1912, to January 13, 1913, I was accompanied by Mr. O. J. Murie of the Fish and Game Commission during the entire period, and by Mr. Peck from December 27 to January 13. During this trip, we experienced some severe storms, especially that of December 28 and 29, when the rain and sleet fell in torrents accompanied by a strong wind. The third and fourth visits, from March 9 to March 21, and May 14 to May 20, 1913, I was accompanied by Mr. Murie for the entire period. During these two trips a part of the time was devoted to collecting small mammals.

The list contains the water and shore birds only. The land birds are omitted until more thorough work can be done in the surrounding territory at a season when the breeding birds are present.

Specimens of all the species listed were secured with the exception of Great Blue Heron (*Ardea herodias*), Killdeer (*Oryzochus vociferus*) and Amer-



Fig. 34. VIEW OF NETARTS BAY, OREGON.

ican Coot (*Fulica americana*), but these three were seen to such advantage that their identity was absolute.

Netarts Bay on the coast of Tillamook County, Oregon, is about six miles in length and from one to three miles in width (see fig. 34). Most of the shore line rises abruptly from the water, leaving no beach at high tide, although during the seasons of low tide a large part of the water recedes from the bay leaving extensive mud flats. On the west the bay is cut off from the ocean by a narrow sandspit, which averages not over half a mile in width. On the bay side of this spit a narrow "salt grass" tide flat extends north about four miles from the southern end of the bay. Most of the sandspit is barren of vegetation except a narrow belt of stunted pine (*Pinus contorta*), huckleberry, and a few scattered willows on the higher parts. Dense forests of spruce, hemlock and fir, with an undergrowth of salmonberry, cover the hills on the

south and east of the bay. A wide, smooth, sandy beach extends north of the bay to Maxwell Point about two miles distant; from this point north several miles the beach is broken by high ragged cliffs and several outlying rocks (see fig. 35), the principal of these being Three Arch Rocks, a National Bird Reservation.

***Aechmophorus occidentalis*.** Western Grebe. A single example was found dead on the beach January 2. This species is evidently common on Netarts Bay at certain times during migration, as local residents are quite familiar with the species.

***Colymbus auritus*.** Horned Grebe. First seen September 9, when Mr. Peck shot a female while it was feeding in the shallow water close to shore. No others were seen during September, but during the periods from December

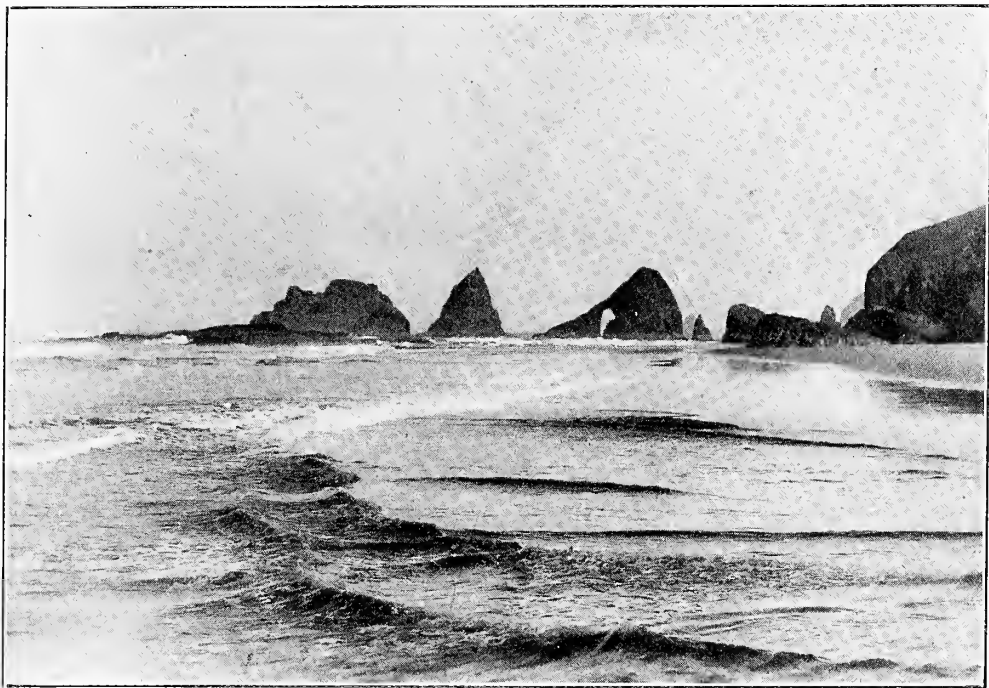


Fig. 35. INSHORE ROCKS, IN VICINITY OF THREE ARCH ROCKS, TILLAMOOK COUNTY, OREGON.

26 to January 12, and March 9 to March 21, this little grebe was continually in sight, either flying low over the water or diving for food in the clear water of the bay.

***Gavia immer*.** Loon. Not positively identified during September, but found in considerable numbers during January and March. This Loon was observed several times while it was fishing in the bay, and was seen to dive and catch fish of considerable size; when a fish of four or five inches in length was caught, it was held in the bill and violently shaken several times before being swallowed. Common during May.

***Gavia stellata*.** Red-throated Loon. Several were seen during the last few days of December and early January. A specimen secured on January 1, showed a patch of red feathers on the throat. All seen were diving and feeding along the bay shore.

**Lunda cirrhata.** Tufted Puffin. Puffins were fairly common about the rocky cliffs near Cape Meares on September 3, but none were seen flying later than September 7. A single example, in winter plumage, partly decomposed, was found half buried in the sand on the ocean beach on December 31. Abundant again in May, when specimens in breeding plumage were secured.

**Cerorhinca monocerata.** Rhinoceros Auklet. Several dead and two exhausted birds of this species were found on the ocean beach between January 1 and 10.

**Ptychoramphus aleuticus.** Cassin Auklet. A number of these birds were found dead on the beach between December 26 and January 10, new ones washing in with nearly every tide. Not a single live bird of this species was seen.

**Phaleris psittacula.** Paroquet Auklet. A single example found dead on the ocean beach by Mr. Peek on January 1.

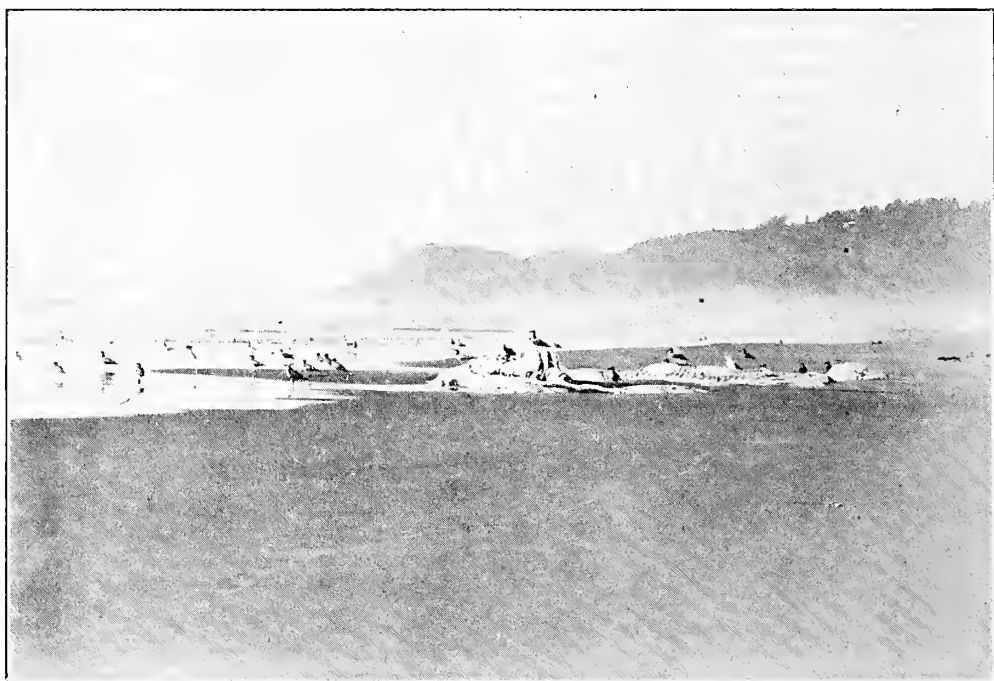


Fig. 36. WESTERN GULLS ABOUT CARCASS OF WHALE ON COAST OF TILLAMOOK COUNTY, OREGON.

**Synthliboramphus antiquus.** Ancient Murrelet. Three were found dead on the rocky beach near Maxwell Point on January 2.

**Cepphus columba.** Pigeon Guillemot. A small young just changing from the downy plumage was found dead on the ocean beach on September 1. During May they were commonly seen feeding in the surf and occasionally in the bay near Netarts postoffice. A few were seen and one secured on May 19 on the rocks about the caves at Short Beach, where no doubt a few remain to breed.

**Uria troille californica.** California Murre. Murres are abundant off the coast of Tillamook County, Three Arch Rocks being their principal nesting place. During the first week of January several dead specimens were picked up on the ocean beach, and two were caught alive in a badly exhausted condi-

tion. All those seen in January had more or less of an oily substance coated in the feathers of the under parts, but whether or not this oily substance was the direct cause of their death, I am unable to say.

**Larus glaucescens.** Glaucous-winged Gull. This species was seen commonly during January. It was usually found with the still more common *L. occidentalis*.

**Larus occidentalis.** Western Gull. Common both along the ocean beach and on the bay. During low tide hundreds of these gulls congregate on the exposed mud flats where they find an abundance of food. The birds also catch many crabs in the shallow water, carrying them to the smooth, sandy beach, where they are torn apart and devoured. I have seen this gull tear open the breast of a surf-scooter and eat the entire body, leaving the skin. At other times the gulls will feed only on the eyes and brains of a bird, leaving the body.

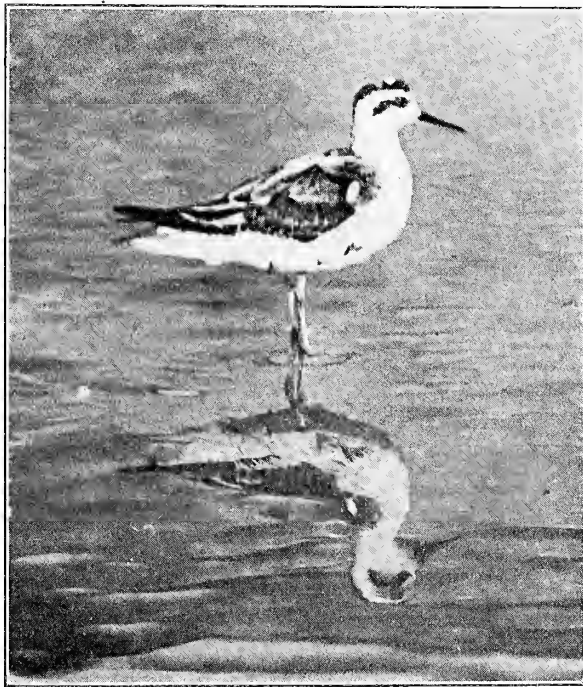


Fig. 37. NORTHERN PHALAROPE IN WINTER PLUMAGE.

They also eat fish and other animal matter thrown up by the tide, caring little whether it be fresh or decomposed, thereby proving their great value as scavengers (see fig. 36).

**Larus californicus.** California Gull. Large numbers of this gull were seen on Netarts Bay on September 8, when a series of skins was collected.

**Larus brachyrhynchus.** Short-billed Gull. Seen but once, on January 2, when two were seen, one of which was secured.

**Rissa tridactyla pollicaris.** Pacific Kittiwake. A single example was found dead on the rocky beach near Cape Meares on March 13.

**Fulmarus glacialis glupischa.** Pacific Fulmar. Several specimens were found dead on the beach from January 1 to 10, and the skins were preserved, showing the dark, mottled and light phases of plumage.

**Phalacrocorax penicillatus.** Brandt Cormorant. Common on the bay during September when specimens were secured.

**Phalacrocorax pelagicus resplendens.** Baird Cormorant. Common on the bay at all times. Seen feeding several times in the surf near the rocks at Maxwell Point.

**Mergus serrator.** Red-breasted Merganser. This beautiful merganser was common on the bay in January and from March 9 to 21. On December 28, a young male was shot by Mr. Peck as it flew from a small creek, near the bay shore. During our stay in the locality from March 9 to March 21, the species was seen daily swimming and diving in search of food in the more shallow parts of the bay. A fine pair in spring plumage was secured in March.

**Dafila acuta.** Pintail. These ducks congregated in immense flocks on the bay during the early part of September, but remained only a few days. Two young females shot by Mr. Peck, were found to be suffering from some kind of parasite; the entire fleshy parts of the breasts were full of small worms.

**Marila valisineria.** Canvasback. This, the most famous of American game ducks, was found in considerable flocks from December 27 to January 12. They usually fed in the shallow water close along shore during low tide, but were ever watchful and at the least sign of alarm the flock would rise and fly to some more secure place.

**Marila affinis.** Lesser Seaup Duck. It was ever a pleasing sight to see these trim little ducks swimming about the bay. No matter how large a flock it was the birds were never scattered about, but always massed together when at rest or feeding in the shallow water along shore. During the stormy weather of December and January this species outnumbered all other ducks on the bay, and from March 9 to 21, a large number of the ducks seen were of this species.

**Clangula clangula americana.** Golden-eye. Common on the bay, in both January and March. This duck is probably the most shy of all those wintering on Netarts Bay. They secure their food by diving, and usually stay well out in the bay while feeding.

**Charitonetta albeola.** Bufflehead. This dapper little duck is common on Netarts Bay all winter, a few were seen in September, and during January and March they were quite common. They are expert divers and secure their food in this way.

**Histrionicus histrionicus.** Harlequin Duck. On September 9, as I was climbing over some rocks just above the roaring surf, I saw a small brown duck bobbing up and down in the surging water between two high mussel-covered rocks. As it rose on a high wave I shot. Later when it washed ashore, I found it to be a female Harlequin. On March 16, Mr. Murie secured a fine adult male in bright plumage. When first seen this individual was sitting on a ledge just above the surf where it had evidently come to rest. On March 18 three others were seen, and on March 19 one was seen. All were along the rocky beach near Cape Meares. In swimming the Harlequin sits high on the water and holds the tail at a high angle.

**Oidemia deglandi.** White-winged Scoter. This large scoter was abundant on the bay in January and March but was not seen feeding in the surf like *O. perspicillata*. Upon rising from the water the wings make a loud whistling sound much like the Golden-eye in flight. It secures its food by diving, and stays under water a remarkably long time. The stomach of this species

is exceedingly large and upon examining several I found an amazing collection of shells and other remains of marine life.

**Oidemia perspicillata.** Surf Scoter. This beautiful black and white scoter was seen during each of my visits to Netarts. Only a few were seen in September, but by December 27 they had become abundant and were still plentiful in March. During calm weather when the bay is smooth, one can watch these expert divers at work securing their food from the bottom of the bay.

**Branta canadensis minima.** Cackling Goose. Large numbers of geese rest on Netarts Bay during fall and winter. Flocks of considerable size were seen in December, January and March. Several species no doubt occur, but as specimens were not secured of any but *B. c. minima*, no others were positively identified. I was told of one occurrence years ago when two hunters killed several hundred geese in one day, simply picking the feathers from them and leaving the bodies to the gulls. On March 20 I saw several small flocks of *minima* alight on the middle rock of the Three Arch group where they evi-



Fig. 38. HUDSONIAN CURLEW.

dently went to rest during their northward flight. On March 20 a female weighing four and a half pounds was shot as it flew low over the beach.

**Ardea herodias.** Great Blue Heron. This heron is of regular occurrence on the mud flats about the bay during low tide. It was seen at different times on all four of my visits to the bay.

**Fulica americana.** Coot. It seems hard to account for the scarcity of Coots on Netarts Bay, when they are abundant on Tillamook Bay only a few miles north. On January 1, Mr. Peek found a dead one on the beach, but no others were seen.

**Phalaropus fulicarius.** Red Phalarope. A single example was seen and secured on September 1. It was feeding on the sandy beach in company with Northern Phalaropes.

**Lobipes lobatus.** Northern Phalarope. Abundant on all sandy beaches from September 1 to 11. These little fellows were the most gentle and confiding of all the shore birds on the beach, often allowing me to approach with-

in a few feet of them while they ran about over the wet sand in search of sand fleas (see fig. 37). Common again in May.

**Recurvirostra americana.** Avocet. A single specimen secured by Mr. Peek on September 10.

**Arquatella maritima couesi.** Aleutian Sandpiper. This species was first taken in Oregon when a specimen was secured on the rocks near Cape Meares on December 31, 1912. No others were seen at the time, although on March 18, two others were taken at the same place. (See CONDOR xvi, 1914, page 93.)

**Pisobia bairdi.** Baird Sandpiper. A few of these sandpipers were found along the wet beach in September, but were not plentiful at any time.

**Pisobia minutilla.** Least Sandpiper. From September 1 to 11 these little fellows were abundant in large flocks.

**Pelidna alpina sakhalina.** Red-backed Sandpiper. This beautiful sandpiper was found in large flocks in company with the Western Sandpiper on the ocean beach during our visit in May.

**Ereunetes mauri.** Western Sandpiper. This was the most abundant sandpiper on the beach in September and in May. Flocks of from a few individuals to a hundred or more were seen daily along the sandy beach. When feeding they follow the receding waves on the run, taking wing before the next wave reaches them, then repeating the same thing over and over again.

**Calidris leucophaea.** Sanderling. Sanderlings were found in large flocks on the sandy beaches in September. On January 1, Mr. Murie secured several specimens on the sandspit and others were seen on March 14, while during May they were common.

**Totanus melanoleucus.** Greater Yellow-legs. A single specimen was taken and another seen by Mr. Peek on the mud flats of the bay during low tide in September.

**Heteractitis incanus.** Wandering Tattler. This bird was fairly common from September 1 to 11 about the rocky beach north of Netarts Bay and also on some half-submerged stumps along the bay shore. Not more than three were ever found together. Several were seen in May.

**Actitis macularius.** Spotted Sandpiper. Two or three were found about the mouths of small streams flowing into the bay, from September 1 to 11, and a single example was seen and collected on the ocean beach in September. Common in May.

**Numenius hudsonicus.** Hudsonian Curlew. Three were seen and one secured by Mr. Peek on the ocean beach on September 9, and several were seen during May (see fig. 38).

**Charadrius dominicus dominicus.** Golden Plover. A single bird was collected on the ocean beach on September 7. It was alone and no others were seen.

**Oxyechus vociferus.** Killdeer. One was seen by both Mr. Murie and Mr. Peek on December 28. It was flying over a fresh water creek that flows into the bay.

**Aegialitis semipalmata.** Semipalmated Plover. During September and May this plover was common in small flocks along the sandy beaches and occasionally on the mud flats of the bay during low tide.

**Aegialitis nivosa.** Snowy Plover. Common on the wide sandy beaches at all times. This plover can run exceedingly fast and tracks measured by Mr.

Peck showed each stride to be six inches in length when the bird was running fast.

**Aphriza virgata.** Surf-bird. On December 31, a cold, stormy day when the sleet-laden wind dashed the ocean spray high up on the rocks, we found a small flock of these hardy birds near Cape Meares, feeding about on the more sheltered rocks in company with a flock of Black Turnstones. The place was visited again in March, but no Surf-birds were seen.

**Arenaria melanocephala.** Black Turnstone. During September this species was seen several times feeding on the sandy ocean beach to the north. During January and March the birds were found only on the rocky beach, where a flock of ten or twelve was seen each time the place was visited.

**Haematopus bachmani.** Black Oystercatcher. This strange, shy bird was seen every time I made my way among the rocks in the vicinity of Cape Meares. Found usually in two's or three's, but on January 2, I saw a flock of a dozen or more. The Oystercatcher feeds on the marine life found growing on the rocks and to my knowledge never seeks food in any other place. The species was fairly common during May. It is known to breed on Three Arch Rocks.

*State Fish and Game Office, Portland, Oregon, February 18, 1914.*

## A SADLY NEGLECTED MATTER

By ALLAN BROOKS

IN THAT best of all collector's manuals, Ridgway's "Directions for Collecting Birds", published in 1891, there occur the following passages in describing the preliminaries to skinning the specimen:

"No measurements are necessary since all measurements of scientific value are best taken from the dried skin. \* \* \* Then if there are any noteworthy features as to color of soft parts they should be carefully noted, this being a very important matter and one sadly neglected by collectors."

How often have I recognized the truth of the last remark when examining the labels of birds collected by American ornithologists. In my own collection not two per cent other than those taken by myself have any data as to color of soft parts. The worst offenders are the ornithologists of California. Among several hundred skins, collected by a dozen or more men, mostly well known to science, only *one* has any record of this sort,—a California Woodpecker collected in the early eighties and which bears the simple legend "eyes white".

Specimens taken by European collectors usually have very complete data in this respect, and all their works of reference pay especial attention to the subject. As an instance I may cite Oates' "Game Birds of India", a tiny duodecimo volume intended for the use of the sportsman. In its small compass eighty-eight species of upland game birds are treated: Habits, recognition marks, descriptions, nidification, measurements, weights, and, in nearly every species, a full record of colors of soft parts.

The utter indifference of even the best ornithologists of America to this "very important matter" has been brought home to me rather forcibly by a

couple of experiences during the past year. While making illustrations for the forthcoming "Birds of California" I had the privilege of the loan of some valuable material from the Museum of Vertebrate Zoology at Berkeley, but was sadly handicapped by the complete absence of all data relative to the vanished color of the bills, feet, and irides. In the case of a Flammulated Screech Owl I might have colored the iris yellow as in other American members of this genus, as there was nothing to guide me on the label of this most valuable specimen, collected by no other than Mr. Grinnell.

The only bird of this species I had seen in the flesh was too far gone in decomposition to afford any data. Neither Ridgway's *Manual* nor Coues' *Key* gave any help, nor did Dr. Merriam's description of the subspecies *idahoensis*, taken by his own party, and the accompanying figure indicated a pale yellowish brown iris.

Fortunately at this juncture there came a memory of a field note in THE CONDOR by that excellent observer, Mr. F. C. Willard, and on turning over a file of back numbers it was found in volume XI, page 201. "The most striking feature to me was the mild look of her face, which appeared very different in aspect from that of other owls I had met with. Presently I discovered that this was due to the eyes, which instead of having a yellow iris as in other owls were a dark chocolate brown."

The other case in point appertained to a friend who was collecting material for a leading Eastern ornithologist. I had previously myself collected for a close friend and fellow worker of this gentleman, who gave me particular instructions to collect all data as to the soft parts, and for whom I had made some hundreds of detailed drawings illustrating these. I advised my friend to be very particular in this regard; judge my surprise when he informed me later that his patron had told him to omit all data relative to the color of soft parts from the labels, but to note the length in flesh; and expanse! Now this ornithologist is a doctor and therefore well aware of the great difference the amount of relaxation that the muscles may be subjected to would make; length in flesh, even if somewhat variable, might be of some value, but of what earthly use is a record of *expanse*? A relic of Pre-Cuvierian days, now relegated to the columns of the local weekly in recording the "tip-to-tip" of the last eagle killed by the country sportsman—with a foot or two thrown in for good measure.

If the color of soft parts was always noted it would simplify the separation of many closely allied species. As an instance, take the case of *Junco phaeonotus palliatus* and *Junco phaeonotus dorsalis*, which are only allowed sub-specific distinction. If the color of the bill and irides was noted on the labels of all these compared, it would probably be a simple matter to distinguish them as they are evidently specifically distinct.

The Red-backed Junco (*dorsalis*) has the pinkish bill and dark claret colored iris of all northern juncos, and it hops like a junco. The Arizona Junco (*palliatus*) has a black upper mandible and a pale yellow lower, with the brilliant yellow iris of a Golden-eye drake. Its motions are just as different from other juncos as its eyes and bill are, as it walks daintily and deliberately over the floor of the forest like a tit-lark or water-thrush, instead of the shuffling hop of the juncos and sparrows.

The writer is well aware that absolutely different colors of irides can obtain in the same species, such as in the tit-mice of the genus *Psaltiriparus*; but

such types are extremely rare, and offer in themselves a large field of research in studying the laws of variation and heredity.

Another deterrent factor in the noting of colors is that many collectors distrust their ability in this regard. They assume that a trained eye, a knowledge of the various tints, and the names of all the pigments are necessary. This is not the case; all that is needed is the ability to distinguish the ordinary colors. These can be qualified by the simplest of prefixes,—“dark”, “light”, “dull”, “bright”, or “intense”,—or modified by a terminal such as “bluish” to indicate something akin to blue. The description should be as concise and brief as possible; too elaborate details are apt to tangle one up. Also it is hardly necessary to define the color of the eyes of all such small birds that have the ordinary brown iris, nor to record the black bill and feet of most of the Corvidae, for example. It is the *divergence* from the ordinary type that is noteworthy.

Some few collectors make elaborate records of the colors of soft parts in their note books, leaving the label of the particular specimen they make the record from, blank in this respect; this is a method greatly to be condemned; one might almost as well record the sex in this manner, as one never knows the ultimate destination of the specimen in future years—or centuries.

Make all records on the label itself; probably the most convenient way is to record the colors of soft parts on the reverse side of the label to that which carries the name, sex, locality, and date. Without these data the specimen is incomplete, a monument during the whole period of its existence to the lack of thoroughness of its collector, no matter how perfect it may otherwise be.

*Okanagan Landing, British Columbia, March 4, 1914.*

## NESTING OF THE KITTLITZ MURRELET

By JOHN E. THAYER

RECENTLY I had the good fortune to obtain from Captain F. E. Kleinschmidt, eggs of the Kittlitz Murrelet (*Brachyramphus brevirostris*), together with some interesting information regarding the breeding habits of the bird. I think, although I am not sure, that these are the first authentic eggs of this species. I have heard only of the white eggs, the same as the one already in my collection, which evidently are not of the Kittlitz Murrelet.

The egg found on the ground, on the side of Pavloff Mountain, June 10, 1913, has a ground color of olive-lake, dotted all over with different sized markings of dark and light brown. It measures, in inches, 2.29x1.40. The other egg, taken from the oviduct of a bird May 29, 1913, is perfectly formed, and was evidently about to be laid. Its ground color is yellow glaucous, with dark brown spots over the whole egg. The measurements are, 2.46x1.45. The second egg taken from a bird's oviduct was so broken that it could not be measured, but color and markings are the same as in the one last described. I have both the females from which these eggs were taken.

Pavloff Bay and Pavloff Voleano, Alaska, where Captain Kleinschmidt's notes and specimens were taken, is near the west end, and on the south side, of the Alaska Peninsula, a little northwest of the Shumagin Islands.

This is what Captain Kleinschmidt says:

During my recent expedition, I spent the time between the first and middle of May cruising in Chatham Strait, Icy Strait and Glacier Bay. Among other specimens, we collected quite a few Marbled Murrelets and also several Kittlitz Murrelets. It was the height of the breeding season of these two species, for we found in every specimen fully or partly formed eggs, most of which, however, were broken in the collecting. However, I preserved, of the Kittlitz Murrelet, one fully formed and colored egg, besides several broken ones.

I had no previous data or reference with me other than "*North American Birds' Eggs*", by Chester A. Reed, and this gives on page 16 the data of Capt. Tilson: "Kittlitz Murrelet—a pure white egg found in a hollow under a bunch of rank matted grass on Sanak Island, June 25, 1899."

I am sending you the broken egg, the whole egg, and both parent birds from whose oviducts they were taken, so you may properly describe and measure them for yourself. I have long doubted the authenticity of the Tilson data, and it seems strange to me that the Kittlitz Murrelet, which so closely resembles the Marbled, should lay such widely different eggs.

On June 5, while lying at anchor off Pavloff Bay, Alaska Peninsula, a trapper and miner came aboard, who saw me preparing skins of the Kittlitz and Marbled murrelets. He recognized the Kittlitz immediately, and said it was strange that a water bird should lay its egg far inland, high on the mountain sides, in the snow. Upon closer questioning he said he meant that the egg was laid, not on the snow, but far above timber line on the mountain, in bare spots, amid the snow. In the sixteen years he had been there he had found but two eggs, but he remembered well the eggs and bird. I had him describe the egg carefully before I showed him the one I possessed, and it tallied with his description.

On June 6, I was hunting brown bear for the Carnegie Museum, in company with this man, and while crossing a high divide, a Kittlitz Murrelet flew past us. "There is your bird", called the trapper immediately; "it has a nest here somewhere". On June 10, I saw with my glasses a she-bear and two cubs far up in the snow of Mount Pavloff. To reach them, I had to climb several miles inside the snow line, with only here and there a few bare spots to give me a much desired walking ground, when close to my feet rose a Kittlitz Murrelet. There on the bare lava, without even the pretension of a hollow, lay a single egg.

Eight years ago, when I shot my first Kittlitz Murrelet in the ice pack of Bering Sea, an Eskimo looking at the bird said, "Him lay egg way up in snow on mountain". I ridiculed the idea then, of this bird laying its egg in the snow far from the sea on the mountain-side, but, keeping a constant lookout, expected to find its breeding place on the rocky islands of Alaska or Siberia, perhaps in company with the auks and murre. Now, however, I found the Eskimo's words corroborated, and the Murrelet's solitary egg laid in just such a strange place as he described. I enclose a photograph marking the spot where I found it, and this egg also.

*Lancaster, Massachusetts, February 9, 1914.*

RESIDENT *VERSUS* VISITANT

By WILLIAM LEON DAWSON

WITHIN ITS own precinct any science has a right to define its own terms, or to discourse in a fashion understood only by its votaries. But if a science is to become intelligible outside of its own realm, it must use, so far as it may, the language of common life; it must recognize and defer to values already assigned. Zoological science, it seems to me, recently trespassed in its attempted perversion of the word *visitant*, and has obscured rather than clarified the vision of its own field.

To be sure there was a real difficulty involved. Human society in its earlier evolution recognized only two relations, that of being at home, *residence*, or that of being temporarily away, whether to commune with friends, to transact a piece of business, or to satisfy curiosity, *visiting*. The visitor was always understood to have a home, an abiding place, to which he would be presently returning. But animals,—or, to be specific, let us say birds,—viewed in this aspect are of three sorts: those which remain always in one locality, the land of their birth, *residents*, in the strict sense; those which, having completed the duties of rearing a family, roam about, whether north or south or east or west, or up or down, visiting various places in turn or casually, being here today or gone tomorrow or next week, *visitors* in the accommodated sense in which an animal, not dependent upon friends nor seeking definite goals, may be said to visit. A third class, the class for which we seek definition, both resides and visits, having in fact two homes, or definite habitual ranges, and spending more or less time visiting on the way between them. This class has been called, not inappropriately, *summer resident* or *winter resident*, according to the particular local relation under consideration. Of late, however, there has been a great fad for calling this third class summer or winter “visitants”, thus confusing them hopelessly with the second class defined above, from which it is of the utmost importance to distinguish them. So defined the Tufted Puffin and the Western Tanager are “summer visitants” of the islands along the coast of Washington. But so also are the Knot and the Wandering Tattler and the Heermann Gull and the California Brown Pelican. Which of these breeds there? The words which might be eloquent if they were chosen with understanding *and in conformity with common usage* tell you nothing. You require to be told further that the Tufted Puffin breeds there, is, in fact, a summer resident. The Western Tanager also makes its home on these islands, becomes for the time, and in every sense susceptible of definition, a resident in summer. The Knot, while found in summer, is evidently away from home; he is on the way, whether north or south, a visitor, or better, a “migrant in summer”. The Heermann Gull,—what shall we say of him? Well, there is difficulty here in either case. He is away from home (his breeding place being in Mexico); hence he is not a “summer resident”, if that term connotes a breeding bird. But he is a summer resident if you understand by that that he has two homes, one of which is in the North. The California Brown Pelican, however, is strictly a summer visitor, in that he only occasionally appears, and then briefly, along the coast of Washington.

We shall have some difficulty, confessedly, in naming this third class; but we are not without help or guidance, and that in common current usage.

Being situated here at a watering place, we Santa Barbarans are perhaps in a position to realize clearly what recent zoonomers have evidently overlooked; viz., that this third class has arisen in human society, and that it has received its designation. Hereabouts we have two or three scores of families, each of which owns two homes, one in Santa Barbara, and the other in Chicago or New York or Boston, as the case may be. These spend habitually from three to six of the winter months with us, and we call them *winter residents*. Similarly a few families resident in Pasadena or Bakersfield, or Fresno, or elsewhere in the heated interior, maintain separate establishments on the coast, to which they resort for two or three months in summer, and we call such *summer residents*. Winter visitors we have also, of course, shoals of them, spending a week or two at the Potter, or a month with friends in Montecito,—here today and gone tomorrow; Santa Barbara this year and Ceylon the next.

It is a travesty on current usage to call the Gambel Sparrow, which spends five or six months with us, a "winter visitant", and to place him thereby in the same category with the Pacific Fulmar and Baird Cormorant and Glaucous Gull, which are occasionally seen in winter; or with the Blue-fronted Jay, which pays us strict visits. And it is grossly inappropriate to call any breeding bird a "visitant" in its breeding home. Imperfect our human terms may be, but let us minimize their imperfection rather than parade our griefs and invite the scorn of those who speak a living language. The terms "summer resident" and "winter resident" are, in my opinion, much more accurate than the proposed substitutes, and they assuredly do conform to current usage.

*Santa Barbara, California, January 8, 1914.*

## A CHANGE IN FAUNA

By FAYRE KENAGY

THE CHANGES in faunas so rapidly developing in certain regions in the west, have a peculiar interest for me. They take place with especial rapidity on irrigation projects, as the result of altered conditions, and desert surroundings are often completely changed in two or three years. The locality I have been especially interested in is the Minidoka project, in southern Idaho, containing about eighty thousand acres and bisected by the Snake River. This last feature makes it doubly interesting, as affording contrast between the changes in the uplands and those along the stream. As there is so great a difference between the two I will mention each separately.

I came to this region in 1907, before the water was turned into the canals, and have resided here permanently since. Thus I have had an excellent opportunity to note the changes which have taken place. The country was originally sandy, and heavily covered with sage-brush. There were fewer than fifteen summer residents, the river belt excluded, nearly all of them typical of a dry region. Sage Grouse, Sage Thrasher, Burrowing Owl, Rough-legged Hawk, Prairie Falcon, Dusky Horned Lark, and Sage Sparrow were by far the most common. As the farmers cleared their land, the Grouse, Sage Thrasher, and Sage Sparrow were deprived of their natural haunts. The Grouse became rare; the Sparrow and Thrasher are now found on the edges of the project, and on state land that has remained uncleared. But this is not the case

with all the original inhabitants. The hawks, being wandering in their habits, are still found here, and are even more abundant than formerly.

The Brewer Sparrow, originally nesting in dense-leaved sage-brush, is now more common than formerly, and builds its nests in fence corners or weed patches. Last summer I observed something interesting about this bird. When it built in sage-brush, the eggs were dark blue, almost as dark as a Cat-bird's, but were normal in size and markings. The last nest I found was in an alfalfa field in a slight depression. The nest was constructed the same as previously, but the eggs were normal in color as well as in size and markings. I am very much interested to learn if the whole species will make this change, or whether it was merely a variation restricted to the individual bird.

As soon as grain and alfalfa were raised, many new birds became common, such as the Grasshopper Sparrow, Lark Sparrow, White-rumped Shrike, and the Mountain and Merrill Song Sparrows. Field mice, meanwhile, had become a pest, and in 1910 there was a great influx of Short-eared Owls. They remained throughout 1911, but are now only fairly common, since the mice have been very much thinned out.

After two years of irrigation, the loose sandy soil became saturated with what was called "sub-water". Low places became wet meadows or even ponds, the low land filled with growths of willows and weeds, and the ponds with cat-tails. Now was there, indeed, a host of new arrivals. Tule Wrens, coots, ducks, bitterns, black-birds, rails and killdeer are now very abundant, whereas formerly there were none. The water birds, or water-loving birds, are now more plentiful than the others. During migrations there are vast numbers that visit us for a month or more. These migratory birds have always passed over the project, or, if they stopped at all, did so along the river only.

Trees are scarcely large enough for birds to build in yet, but the orchards and hedges are frequented by robins, grosbeaks, orioles, and warblers. I once saw a Red-breasted Nuthatch, and wondered how it could get along in a sage-brush region. The Burrowing Owl, badger, and kangaroo rat were forced to find high ground when the sub-water came up. Horned toads and lizards retreated when the land was tilled. Rabbits are a pest only to the farmers who live near large areas of uncleared land. The Pinyon Jay inhabits the foothill region several miles away, and makes occasional visits. The Sparrow Hawk is becoming common, coming from an old settled area thirty miles away.

The river belt has changed but little. The willows have been the home of robins, warblers, and sparrows; while swallows, kingfishers, and flickers nest in the banks. There are many water birds that breed on the brushy islands in the stream. There are no new waterbirds found there, but many birds such as the Lark Sparrow, Grasshopper Sparrow, and Kingbird, have come from the inland territory.

The Valley Partridge (introduced from California) and Belted Kingfisher have spread over the highlands of the project. The same is true of many kinds of ducks and the Limicolae.

At the dam there are other conditions prevailing. Here a large colony of Cliff Swallows nests under the eaves of the power plant, over the roaring water. In the heaps of rocks excavated from the canals there are several pairs of Rock Wrens, of interest because this is the only place hereabouts where they are found. Of course this is local, as the changes in the whole pro-

TABLE SHOWING CHANGE IN STATUS OF BIRDS ON THE MINIDOKA PROJECT, IDAHO

	1907	1908	1909	1910	1911	1912	1913
<i>Dafila acuta</i> .....	tolerably common	tolerably common	common	common	common	abundant	abundant
<i>Plegadis guarauna</i> .....			rare	tolerably common	tolerably common	common	common
<i>Fulica americana</i> .....			rare	common	abundant	abundant	abundant
<i>Gallinago delicata</i> .....			rare	rare	common	abundant	abundant
<i>Actitis macularius</i> .....				tolerably common	abundant	abundant	abundant
<i>Centrocercus urophasianus</i> .....	tolerably common	rare	rare	rare	rare		
<i>Asio flammeus</i> .....				abundant	abundant	rare	rare
<i>Speotyto cunicularia hypogaea</i> .....	tolerably common	tolerably common	tolerably common	rare	rare	rare	rare
<i>Selasphorus platycercus</i> .....			tolerably common	common	rare	rare	rare
<i>Tyrannus tyrannus</i> .....					rare	rare	rare
<i>Tyrannus vociferans</i> .....				rare	tolerably common	tolerably common	tolerably common
<i>Otocoris alpestris merrilli</i> .....	tolerably common	abundant	abundant	abundant	abundant	common	common
<i>Chondestes grammacus strigatus</i> .....			rare	tolerably common	abundant	abundant	abundant
<i>Amphispiza nevadensis nevadensis</i> ...	abundant	abundant	common	tolerably common	rare	rare	
<i>Hirundo erythrogastra</i> .....					rare	rare	rare
<i>Dendroica auduboni</i> .....					rare	tolerably common	tolerably common
<i>Piranga ludoviciana</i> .....			rare	rare	rare	rare	tolerably common
<i>Oreoscoptes montanus</i> .....	abundant	abundant	common	tolerably common	rare	rare	rare
<i>Pianesticus migratorius propinquus</i> ...			rare	rare	tolerably common	common	common

ject are on a comparatively limited area. It is an oasis in the desert, for desert conditions still exist on all sides.

Since the opening of the region the number of bird species has risen from fifteen to one hundred and thirty. A few of the most interesting changes are tabulated below.

*Boulder, Colorado, February 25, 1914.*

## THE RACES OF *BRANTA CANADENSIS*

Suggested by Swarth's "Study of a Collection of Geese"\*

By ALLAN BROOKS

NO GROUP of North American birds so badly needed revision as the geese of the *canadensis* type, and Mr. Swarth has put not only all ornithologists, but also the discriminating sportsman, under a deep debt of gratitude for his excellent and carefully studied paper, which is practically in the nature of a monograph of the group.

American ornithologists have always been rather prone to carefully study all small birds, and let the larger species severely alone. No better instance of this is needed than the case of these geese. Sportsmen were unable to correctly identify the geese they shot by the aid of any of the available works, nor could their ornithological friends help them much, as all the given diagnoses were at fault.

Could anything be more impossible than the breeding range of *Branta c. occidentalis* as given in the latest A. O. U. *Check-List*? This sub-species is there quoted as breeding in northeastern California and on the coast of western Alaska—localities some fifteen hundred miles apart—though it was known that the whole intervening country was occupied by typical *canadensis*.

Many good ornithologists had worked the northern California and Oregon regions, but it was not until the last year or two that it was definitely ascertained that all records of *occidentalis* as a breeding bird were wrong, and that *canadensis* and only *canadensis* was the resident species. The wonder is that any credence could be given to the theory of an isolated breeding colony of *occidentalis*.

Mr. Swarth has been unable to find any reliable evidence of this sub-species in California, even as a migrant.

In his treatise he first of all proves the fallibility of all the distinctions as based on pattern and color, and indicates that the most reliable distinctions between *canadensis*, *hutchinsi*, and *minima* lie in the measurements of the culmen and in the comparative lengths of tarsus and middle toe. The very adequate and ingenious system of symbolical measurement charts given by Mr. Swarth are a distinct feature of his work. From these it would seem that most reliance can be placed on measurements of the culmen to separate the three subspecies, i. e., *canadensis*, *hutchinsi*, and *minima*. In his table the two former do not coalesce at all in this respect, and the slight overlapping of the last two might

\*A Study of a Collection of Geese of the *Branta canadensis* Group from the San Joaquin Valley, California. By Harry S. Swarth. Univ. Calif. Publ. Zool., vol. 12, 1913, pp. 1-24, 2 pls., 8 text figs.

be accounted for by the fact that no distinction was made in the comparison of old and juvenile birds.

It is difficult to tell the young from adults when the birds are in skin form, but in the flesh the difference is usually fairly apparent. In the adults of all geese the feathering of the neck is fuller, the knob on the carpus is more prominent, and the whole plumage has a distinct gloss seldom seen in the young bird. Could the tests of the measurement of culmen, and the comparative measurements of tarsus and middle toe, be applied to a series of geese where only young could be compared with young, and adults with adults, it is the writer's belief, based on the handling of many geese in the flesh, that there would prove to be three distinct species—not subspecies—*canadensis*, *hutchinsi*, and *minima*, with *occidentalis* as a subspecies of *canadensis*.

If the four birds accepted as subspecies occupied distinct breeding ranges, impinging only on their boundaries, the theory of their specific identity might be a sound one, but in the case of *canadensis*, *hutchinsi*, and *minima* their breeding ranges overlap to such an extent that they cannot be treated as climatic subspecies. In the field *minima* seems to be a very distinct species; in flight the neck looks shorter and the wings longer in proportion than in any other goose, not even excepting the Brant. It also has an unique and peculiar cackling or chuckling cry, only rarely heard, in addition to the ordinary high pitched "honk". Was this known to Mr. Ridgway when he gave it its common name?

It is unfortunate that Mr. Swarth had to work on material, the bulk of which is from California. He has evidently not seen the breeding *canadensis* from the coast strip south of the breeding range of *occidentalis*.

This is largely a non-migratory bird, nearly as dark as *occidentalis*, the under parts being dark gray-brown, but the measurements fully up to the maximum of *B. canadensis canadensis*.

This bird the present writer long took to be *occidentalis* until specimens were carefully measured. The next problem was to identify *occidentalis* among the numbers of *hutchinsi* that he had a chance to examine. The conclusion he was forced to was that as far as southern British Columbia was concerned *occidentalis* was a myth, even though so eminent an authority as Mr. Brewster identified skins sent to him as of that subspecies. The whole problem is a very difficult one and much work remains to be done on the group, but Mr. Swarth's treatise should serve as a basis, a sort of causeway over a hitherto impassable morass.

*Okanagan Landing, British Columbia, January 25, 1914.*

## THE BIRDS OF TETON AND NORTHERN LEWIS AND CLARK COUNTIES, MONTANA

By ARETAS A. SAUNDERS

WITH TEN PHOTOS BY THE AUTHOR

TETON COUNTY lies in the northern half of Montana and considerably west of the center of the state, its northern border formed by the Canadian boundary, and its western by the continental divide. Although in the western half of Montana, its bird-life is more nearly like that of the east-

ern part of the state, due to the fact that along the northern border the eastern prairie region extends farther westward than elsewhere, and in fact reaches the eastern base of the mountains forming the continental divide. I have included with Teton County that portion of Lewis and Clark County that lies in the drainage of the Sun River (see fig. 39). The southern boundary of Teton County is formed by the North Fork of the Sun River, but since my observations covered both sides of the river, and the character of the country is essentially the same on both sides, I have made the divide between the drainages of the Sun and Dearborn rivers the southern boundary of the region studied. This divide forms a natural division between different regions of the state, the character of the country being markedly different on the two sides of it.

In studying the distribution and occurrence of the birds of this region, it may be considered in two main parts, the prairies and the mountains. The

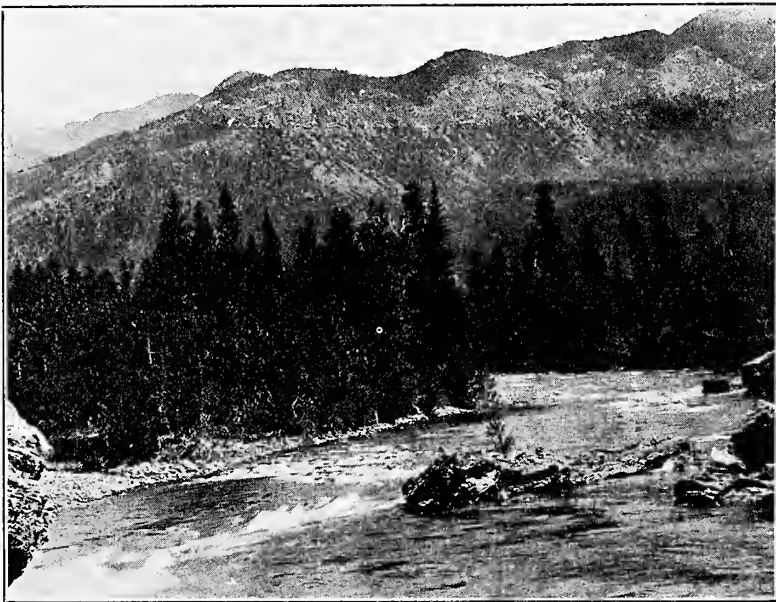


Fig. 39. VIEW IN THE CANADIAN ZONE ON THE SUN RIVER, LEWIS AND CLARK COUNTY, MONTANA.

prairies occupy the eastern portion, and cover considerably more than half of the total area. They lie entirely within the Transition zone, and their altitude varies from 3500 to 4500 feet. They consist of open grass land, rolling hills and flat-topped benches, steep-sided buttes, and broad valleys, watered by streams that are bordered by cottonwood groves and willow thickets. Alkaline ponds and lakes are quite frequent, in fact very numerous toward the westward, along the edge of the lower mountain slopes.

The mountains occupy a comparatively narrow strip through the western part of the counties. They embrace the headwaters of the Sun, Teton and Two Medicine rivers, and Birch Creek (see fig. 40). They lie in the Transition, Canadian, Hudsonian and Alpine zones, and range from 4,000 to 9,500 feet in altitude. These mountains are extremely rough, consisting of numerous limestone ridges with precipitous sides. In many places most of the timber has

been destroyed by repeated fires, but in other parts, particularly about the headwaters of the Sun River, there are extensive forests of evergreen trees.

In the Transition zone the principal trees are the Limber Pine (*Pinus flexilis*) and the Douglas Fir (*Pseudotsuga taxifolia*). The first forms rather extensive but open forests of crooked and stunted trees along the eastern border of the mountains. The latter occurs on north slopes and along streams, and extends up into the Canadian zone. The most extensive mountain forests lie in the Canadian zone. The principal trees in these forests are the Douglas Fir, Lodgepole Pine (*Pinus murrayana*) and Engelmann Spruce (*Picea engelmanni*). In the Hudsonian zone most of these species occur as stunted trees, and with them are also the White-bark Pine (*Pinus albicaulis*), Alpine Fir (*Abies lasiocarpa*), and Mountain Larch (*Larix lyalli*).

The observations in this list were made by myself during a period from June 21, 1911, to March 3, 1913, during which time I was assigned to work on the Lewis and Clark National Forest. Most of the observations in the prairie region were made in the vicinity of Choteau, a small but growing prairie town, the county seat of Teton County. The altitude there is about 3800 feet. Southeast of Choteau are two conspicuous buttes, known as Rattlesnake and Priest buttes, which rise to a height of 4500 feet. At the foot of Priest Butte lies a group of three alkaline lakes, known as the Priest Butte Lakes (see fig. 41). One of these is of considerable size, and all of them attract numerous water birds, particularly during the migrations.

Another point of interest within this region is the Willow Creek Bird Reservation, an area set aside by the government, originally in the interests of the Reclamation Service, but now also as a bird reservation. This area, which is in the prairie region, lies near the town of Augusta. I have not had opportunity to visit it during the breeding season, but have seen numerous water birds there during migrations. It contains one large lake which is frequented by many species of ducks, Snow Geese, and Whistling Swans. The birds recognize the protection afforded by this area, and flock there in preference to nearby areas that are otherwise similar. This area will be of great value in preserving such breeding species of this region as the Curlew, Avocet and various species of ducks, all of which are becoming less abundant as the settlement of the region advances.

My observations in Teton County were largely confined to the southern portion. It is quite probable that the county will be divided in the near future and the northern portion given some other name. In that case the observations in this list, except those from the vicinity of Lubeck and the Two Medicine River, will still apply to Teton County. The county at present includes that portion of the Glacier National Park which lies east of the continental divide. Some previous ornithological work has been done there by Mr. George Bird Grinnell, and the results published in early numbers of *Forest and Stream*. I have been unable, however, to obtain access to these publications, so am not aware of just what they contain. I believe that work has also been done in this region by the Biological Survey, but most of the records are unpublished. In previous publications on birds in this region, I have spelled the name of the county seat of Teton County as Chouteau, rather than Choteau. Both spellings have been used commonly, and the first adopted by the post-office authorities. Since my publication, however, the town has been incorporated, and Choteau has been officially adopted. Unless otherwise stated, migration dates in this list were obtained at Choteau, or in the immediate vicinity.

## LIST OF SPECIES

**Colymbus holboelli.** Holboell Grebe. Migrant. Observed at Lubeck, September 25-27, 1911. A carcass found at Priest Butte Lakes in the fall of 1912.

**Colymbus nigricollis californicus.** Eared Grebe. Summer resident. Breeds commonly in sloughs that are overgrown with rushes. No nests found, but the birds were seen frequently with broods of young. Migration dates: September 4, 1911, and May 1, 1912.

**Podilymbus podiceps.** Pied-billed Grebe. Seen rarely in summer. Probably breeds with the above species.

**Gavia immer.** Loon. Rare migrant. Observed once on Priest Butte Lake, May 26, 1912.

**Larus delawarensis.** Ring-billed Gull. Migrant and summer resident. Adult birds are seen commonly all summer about the alkaline lakes and ponds, but I doubt if they breed, as I have never seen young birds until late in the fall

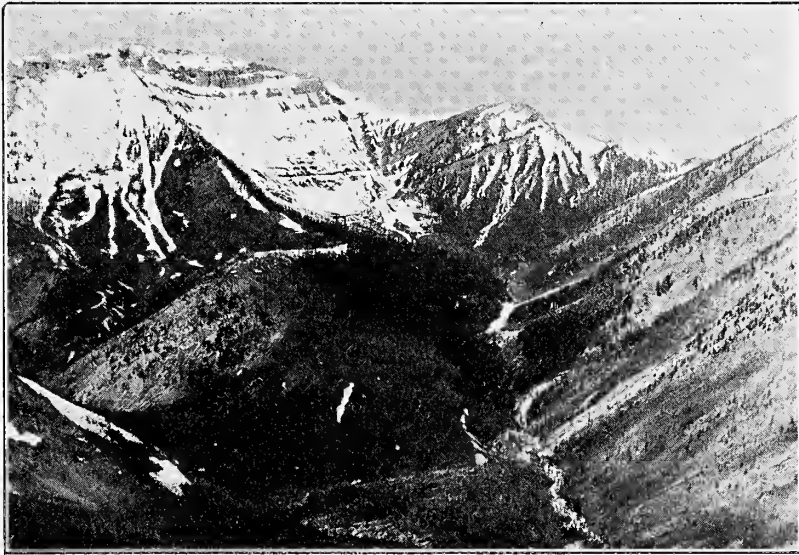


Fig. 40. HUDSONIAN AND ALPINE ZONES, IN MOUNTAINS AT HEAD OF BIRCH CREEK, TETON COUNTY, MONTANA.

migration. Probably Herring Gulls and perhaps other species occur in migrations with this species, but no others have been positively identified. Migration dates: April 16, 1912, and November 19, 1912.

**Larus philadelphia.** Bonaparte Gull. A flock of these gulls was observed on an alkaline lake about ten miles from Choteau, October 31, 1912.

**Mergus americanus.** Merganser. Observed on the Teton River near Choteau on April 16 and 17, 1912. A pair of birds seen each day.

**Mergus serrator.** Red-breasted Merganser. Quite common along the Sun River inside the mountains, in August and September. A small flock observed near Choteau, May 23, 1912.

**Anas platyrhynchos.** Mallard. The most abundant duck in this region. Nests commonly all through the prairies, and is very abundant in migrations. Flocks also winter commonly on sloughs where there are warm springs that

keep the water open. The spring migration begins early in March, and the fall migration lasts until December 1, or even later. Nesting begins in late April and the first downy young may be seen early in June. (See fig. 42.)

***Chaulelasmus streperus***. Gadwall. Summer resident. Not very common, but occurs and nests regularly. Birds are seen with broods of young in June and July. Migration date: April 17, 1912.

***Mareca americana***. Baldpate. Summer resident, breeding commonly about the alkaline ponds. Very abundant in migrations. Probably nests a little later than the Mallard and Gadwall. The birds occur in small flocks in the spring migrations until May, whereas the above species are usually in pairs at this season. Migration dates: April 17, 1912, and November 28, 1912.

***Nettion carolinense***. Green-winged Teal. Common migrant and rather rare summer resident. Migration date: April 16, 1912. On December 27, 1912, I secured a crippled bird that was wintering on a small spring-hole near Choteau. The wing of this bird had been broken for a long time and had partially healed over, but not in a way to enable it to fly.

***Querquedula discors***. Blue-winged Teal. Quite common summer resident, particularly about the edges of ponds that are overgrown with rushes. Young seen near Choteau July 7, 1912.

***Spatula clypeata***. Shoveller. Common summer resident. Very abundant in migrations. Occurs in large flocks on the alkaline ponds in fall. Migration dates: March 24, 1912, and November 9, 1912.

***Dafila acuta***. Pintail. Summer resident and migrant. Breeds in similar places to the Mallard, but much less commonly. I examined a drake of this species that was shot by a hunter near Choteau, December 27, 1912.

***Marila americana***. Redhead. Observed twice in migrations: September 13, 1911, and April 17, 1912.

***Marila valisineria***. Canvasback. Common migrant on the alkali lakes, remaining in fall until these lakes freeze over. Migration dates: April 17, 1912, and November 24, 1912.

***Marila affinis***. Lesser Scaup Duck. Common summer resident. Breeds in the vicinity of the alkaline ponds. Migration date: May 1, 1912.

***Clangula clangula americana***. Golden-eye. Common migrant and winter resident. Abundant on the alkaline lakes in migrations, and along the rivers all winter. Seen in spring up to May 3, 1912, and not seen in fall until November 24, 1912.

***Charitonetta albeola***. Bufflehead. Common migrant on the alkaline ponds. Seen in spring from April 17 to May 14, 1912, and in fall from November 9 to 24, 1912.

***Histrionicus histrionicus***. Harlequin Duck. Rare summer resident in the mountains. I observed several birds on Birch Creek from May 30 to June 3, 1912, and believe the birds were breeding there but could not find a nest. They frequented the rapids and swiftest parts of the streams, evidently living largely on fish.

***Chen hyperboreus hyperboreus***. Snow Goose. Abundant migrant on the alkaline ponds and lakes. Occurs in large flocks, often numbering thousands. Flocks frequently light in the fields, apparently exhausted from long flight, and are then often killed with sticks before they can rise and fly. The people commonly call them "brant". Migration dates: April 9 to 23, 1912, October 24 to 31, 1911, and November 9 to 24, 1912.

**Chen rossi.** Ross Goose. One observed on the Teton River, near Choteau, May 8, 1912. This bird seemed exhausted, and I was able to approach it and examine it closely before it flew.

**Branta canadensis canadensis.** Canada Goose. Common migrant in March and November, but not in such large numbers as the Snow Geese. Formerly bred commonly along the rivers, and is reported to still breed in small numbers along the Marias River. Migration dates: November 24 to 28, 1912.

**Olor columbianus.** Whistling Swan. Common migrant on the larger alkaline lakes. I examined the remains of a dead bird found on the shores of Priest Butte Lake, and from the position of the nostril identified it as this species. Migration dates are October 31, 1911, April 23, 1912, and November 9 to 28, 1912.

**Botaurus lentiginosus.** Bittern. Summer resident in sloughs where rushes grow thickly, throughout the prairie portion of the region. Migration date: May 13, 1912.

**Ardea herodias herodias.** Great Blue Heron. Summer resident on the

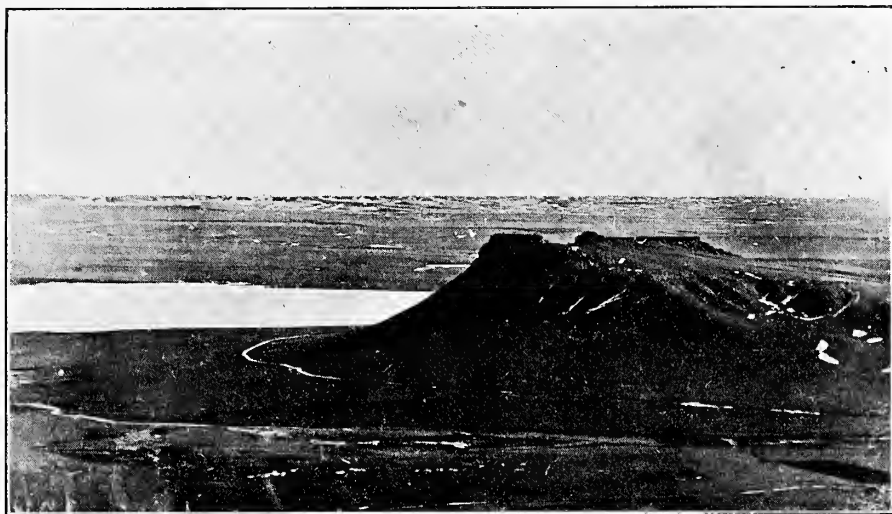


Fig. 41. PRIEST BUTTE, TETON COUNTY, MONTANA.

larger rivers. Common on the lower Sun River, but I have not seen it on the other rivers of this region.

**Grus mexicana.** Sandhill Crane. A pair observed near Choteau, April 28, 1912.

**Porzana carolina.** Sora. Summer resident in sloughs and marshes of the prairies. A nest found near Choteau, June 13, 1912 (see CONDOR, xv, 1913, p. 128). Migration date: May 14, 1912.

**Fulica americana.** Coot. Common summer resident and migrant. Nests are common in thick rushes about the borders of ponds and sloughs. In migration the birds occur in large flocks on the alkaline ponds and lakes. Migration dates: September 28, 1911, May 26, 1912, and November 9, 1912.

**Lobipes lobatus.** Northern Phalarope. Flocks observed in fall migration at Priest Butte Lakes, August 13 to September 4, 1911.

**Steganopus tricolor.** Wilson Phalarope. Common summer resident in marshy places on the edges of alkaline ponds. Downy young observed in

June. Migration date: May 23, 1912. Probably returns south very early, as I have no records later than July 3, 1911, and July 7, 1912.

**Recurvirostra americana.** Avocet. Common summer resident of the prairies, nesting on the shores of alkaline ponds, and on islands in the larger ones (see fig. 43). Begins nesting late in May, and downy young are seen by the middle of June. Migration date: May 23, 1912. Most of the birds evidently leave in August, but I have record of one September 1, 1911.

**Gallinago delicata.** Wilson Snipe. Found in small numbers all the year around. Nests regularly, but not commonly, in wet marshy meadows, and occurs all winter around warm springs where the water remains open.

**Pisobia maculata.** Pectoral Sandpiper. A small flock seen and one bird secured at Priest Butte Lakes, September 4, 1911.

**Pisobia bairdi.** Baird Sandpiper. Migrant on the shores of alkaline ponds. Observed August 13 to September 4, 1911.

**Pisobia minutilla.** Least Sandpiper. Found with the above species on August 13, 1911.

**Limosa fedoa.** Marbled Godwit. A single individual seen at Priest Butte Lakes, May 26, 1912.

**Totanus melanoleucus.** Greater Yellowlegs. Migrant. Observed at Priest Butte Lakes September 4, 1911.

**Totanus flavipes.** Yellowlegs. Common migrant. Dates are August 13 to September 4, 1911, and May 8 to 23, 1912.

**Helodromas solitarius cinnamomeus.** Western Solitary Sandpiper. Fall migrant. Observed about prairie ponds August 5 to 18, 1911, and on the upper Sun River in the mountains, August 13, 1912.

**Bartramia longicauda.** Upland Plover. Observed once near Choteau, June 27, 1911.

**Actitis macularius.** Spotted Sandpiper. Common summer resident along the borders of streams, both on the prairies and in the mountains up to about 5500 feet altitude. Migration dates: May 17, 1912, and August 28, 1911. I found several nests near Choteau in June, 1912; in one of these the eggs hatched on June 22. (See fig. 44.)

**Numenius americanus.** Long-billed Curlew. Summer resident. Still common in many places on the prairies, but becoming rare in the more thickly settled parts. Begins nesting in May. In late July the young and old birds gather in large flocks about the alkaline ponds, and most of them leave soon after this. Migration dates: September 4, 1911, and April 20, 1912.

**Squatarola squatarola.** Black-bellied Plover. Several birds of this species observed at Priest Butte Lakes, September 4, 1911.

**Oxyechus vociferus.** Killdeer. Abundant summer resident. Nests commonly throughout the prairies. Migration dates: March 26, 1912, and October 12, 1912. In fall migration the Killdeer evidently passes over in considerable numbers at night. The call of this bird may be heard late at night, coming from overhead, through September and in early October.

**Dendragapus obscurus richardsoni.** Richardson Grouse. Abundant resident throughout the mountains. Breeds on the grass slopes of the upper Transition and lower Canadian zones. Broods of young are very common in such places all summer, feeding very largely on grasshoppers. About the middle of September, when the first snowstorms come, the grouse move up the mountains; here they winter along the ridges of the upper Canadian and Hudsonian

zones, feeding on bear-berries and juniper, or on pine and fir needles when the berries are covered with snow. They return to the lower slopes again when the breeding season commences, about the middle of May.

**Canachites franklini.** Franklin Grouse. Permanent resident in the mountains, occurring in the thick, dense, spruce forests along the mountain streams, and in the bottoms of gulches. Said to be less common now than formerly.

**Bonasa umbellus umbelloides.** Gray Ruffed Grouse. Permanent resident in the mountains, between altitudes of 4500 and 6000 feet. Inhabits the willow and cottonwood thickets of the lower mountain streams. All the birds I have observed closely in this region are *B. u. umbelloides*, while those of more southern Montana are *B. u. togata*.

**Lagopus leucurus leucurus.** White-tailed Ptarmigan. Permanent resident in the Alpine zone along the higher ridges. Only found on the more remote ridges, along, or near, the continental divide.

**Pedioecetes phasianellus campestris.** Prairie Sharp-tailed Grouse. Permanent resident of the prairies. The birds begin nesting in late May, when the cooing sound which accompanies the "chicken dance" may be heard any evening. The first young are usually seen early in July. In winter the birds gather in large flocks in the thickets, feeding largely on buffalo-berries and wild rose hips. In spring and fall they frequent alfalfa fields, and eat the alfalfa leaves.

**Zenaidura macroura marginella.** Western Mourning Dove. Summer resident. Much less common than in southern Montana. I found nests with eggs in July. Migration date: May 19, 1912.

**Circus hudsonius.** Marsh Hawk. Common summer resident. The most abundant hawk in the prairie portion of the region. An account of the nesting of this bird in this region has been published (see CONDOR, xv, 1913, pp. 195-204). Migration date: April 7, 1912.

**Accipiter velox.** Sharp-shinned Hawk. Summer resident in the mountains. Nests commonly in aspen groves and spruce thickets. Young are usually not out of the nest till late August. Migration dates: May 8, 1912, September 8, 1911, and September 13, 1912.

**Accipiter cooperi.** Cooper Hawk. Summer resident. Usually seen only in the mountains, but I observed one in a cottonwood grove near Choteau, July 8 and 9, 1912.



Fig. 42. NEST AND EGGS OF THE MALLARD.

**Astur atricapillus atricapillus.** Goshawk. I observed a pair of these birds June 29, 1911, in a heavy stand of spruce timber on Beaver Creek, in the Sun River country. I believe they had a nest in the vicinity. I saw another bird on the West Fork of the Sun River September 3, 1912.

**Buteo borealis calurus.** Western Redtail. Common summer resident. The commonest hawk in the mountains, but occurs rarely on the prairies. Nests occasionally in large firs, but much more frequently on rocky ledges on the faces of steep cliffs.

**Buteo swainsoni.** Swainson Hawk. Common summer resident of the prairies, nesting in cottonwood groves. Also found along the base of the mountains, where it nests in the limber pines. I found one nest placed in a willow bush but six feet from the ground. Nesting begins late in May. Migration dates: May 1, 1912, and September 27, 1911.

**Archibuteo lagopus sancti-johannis.** Rough-legged Hawk. I observed this hawk but once: January 8, 1912.

**Archibuteo ferrugineus.** Ferruginous Rough-leg. Summer resident; not common. A pair nest each year on the precipitous face of Priest Butte. Nesting begins early in May, and I was informed that this nest contained eggs and newly-hatched young on June 2, 1912.

**Aquila chrysaetos.** Golden Eagle. Permanent resident. Most common along the bases of the mountains.

**Haliaeetus leucocephalus alascanus.** Northern Bald Eagle. Rare. I have seen it only in March and November, when there seems to be a migration of this species along the foothills of the mountains. I have listed it as the subspecies *alascanus* on the strength of a mounted specimen in the Forest Service office at Choteau. This is a bird in juvenal plumage. It measures: wing, 27.5 inches, tail, 16.0 inches, and tarsus, 4.4 inches, measurements certainly large enough to class it with the northern subspecies. This bird came from a little outside this region, having been secured by Mr. W. H. Daugs of the Forest Service on the South Fork of the Flathead River, west of the continental divide.

**Falco rusticolus rusticolus.** Gray Gyrfalcon. I observed a bird of this species very closely at Collins, January 8, 1912.

**Falco mexicanus.** Prairie Falcon. Summer resident in the prairie region. A pair nested on the side of Rattlesnake Butte in 1912.

**Falco peregrinus anatum.** Duck Hawk. Rare summer resident. I saw a pair near the cliffs on Priest Butte several times in the summer of 1911, and believe that they nested there. They were not present in 1912, however.

**Falco sparverius phalaena.** Desert Sparrow Hawk. Summer resident in the prairie region. I found a nest in an old flicker hole in a cottonwood near Choteau, in 1912. The young from this nest were on the wing July 14. This hawk is less common here than in southern Montana. Migration dates: May 19, 1912, and September 28, 1911.

**Pandion haliaetus carolinensis.** Osprey. Observed once, along the Teton River, near Choteau, May 19, 1912.

**Asio flammeus.** Short-eared Owl. Common summer resident of the prairies. I believe that at least four pairs nested within a radius of two miles of Choteau in 1912 (see CONDOR, xv, 1913, pp. 121-125).

**Bubo virginianus pallescens.** Western Horned Owl. Permanent resident

in the prairies, nesting in cottonwood groves. I observed young near Choteau, well able to fly, in late May, 1912.

**Nyctea nyctea.** Snowy Owl. Occasional winter visitor on the prairies.

**Surnia ulula caparoch.** Hawk Owl. One seen near Summit, in fire-killed pine timber, November 8, 1912.

**Glaucidium gnoma pinicola.** Rocky Mountain Pygmy Owl. Permanent resident. Observed frequently in different parts of the mountains, but most commonly in fir timber on Beaver Creek, a tributary of the Sun River.

**Ceryle alcyon alcyon.** Belted Kingfisher. Common summer resident along streams, both in the prairies and mountains. Migration dates: April 9, 1912, and September 27, 1912.

**Dryobates villosus monticola.** Rocky Mountain Hairy Woodpecker. Permanent resident. Found in winter and migrations in cottonwood groves along streams in the prairies. Breeds in pine and fir forests in the mountains. It is possible that the bird of this region is referable to *leucomelas*. I secured no specimens, but found a dead bird near Choteau, late in March, 1912, from which I saved a wing. From the markings on this wing, I believe that this bird was intermediate between *monticola* and *leucomelas*.

**Dryobates pubescens**  
(subspecies?).

Downy Woodpecker. One bird seen near Choteau, January 5, 1913. Since this bird occurred in winter, and this species is certainly not common in this region in the breeding season, I believe that it may belong to *D. p. nelsoni*. In this connection I wish to call attention to a note of Bendire's (Life Hist. N. Amer. Birds, vol. II, p. 56) made before this subspecies was described, but which undoubtedly proves the occurrence of *nelsoni* in Montana in winter.



Fig. 43. NEST AND EGGS OF AVOCET.

56) made before this subspecies was described, but which undoubtedly proves the occurrence of *nelsoni* in Montana in winter.

**Picoides arcticus.** Arctic Three-toed Woodpecker. Observed in considerable numbers in fire-killed timber, on the South Fork of the Two Medicine River, January 15, 1912.

**Picoides americanus dorsalis.** Alpine Three-toed Woodpecker. Observed in considerable numbers with the above species at the same time and place. A single bird seen in the same place March 30, 1912, and one observed on Birch Creek June 2, 1912. A large area on the Two Medicine River was burned over in the summer of 1910. The next year the bark of the fire-killed trees was infested by a small beetle. The presence of this beetle evidently accounted for the abundance of three-toed woodpeckers on this area in January. No birds were seen there the following winter.

**Melanerpes erythrocephalus.** Red-headed Woodpecker. Rare summer resident. One bird seen near Choteau, July 16, 1911, and a pair near Strabane, June 5, 1912.

**Asyndesmus lewisi.** Lewis Woodpecker. Summer resident. I have seen it only in the southern part of the region, in cottonwood groves along the Sun River, just outside the mountains.

**Colaptes cafer collaris.** Red-shafted Flicker. Common summer resident. Nests in cottonwood groves in the prairies and in the lower mountain canyons up to 5500 feet. Most of the birds are hybrids, but I have seen none in this region that were typical of the eastern species. Migration date: April 7, 1912. Two birds wintered near Choteau in the winter of 1912-13.

**Chordeiles virginianus henryi.** Western Nighthawk. Common summer resident both in prairies and in the mountains below 6000 feet. Migration dates: June 7, 1912, August 28, 1911, and August 29, 1912.

**Selasphorus rufus.** Rufous Hummingbird. Summer resident. Not common, but found most frequently along the foothills of the mountains.

**Stellula calliope.** Calliope Hummingbird. Summer resident of the mountains. Seen rarely. I secured a male on Birch Creek, June 2, 1912.

**Tyrannus tyrannus.** Kingbird. Abundant summer resident in the prairies. The Kingbirds in this region depart from their usual habit of nesting high, and place their nests low down in young cottonwoods or buffalo-berry bushes, particularly those along the banks of streams. The nest frequently overhangs the water. In 1912 I found ten nests near Choteau, no one of which was higher than eight feet from the ground, and one of them was less than two feet from the water of the stream it overhung. Migration dates: May 23, 1912, and August 22, 1911. The first nests are built in this region about the middle of June. The eggs take fourteen days to hatch, and the young leave the nest when fourteen or fifteen days old, so that they are first on the wing in the latter half of July.

**Tyrannus verticalis.** Western Kingbird. Rare summer resident in the prairies. One pair nested near Choteau in 1912. Others seen on the Sun River, near Augusta. Migration dates: May 28, 1912, and August 18, 1911.

**Sayornis sayus.** Say Phoebe. Summer resident on the prairies. Not common. Nests on buildings or on rocks on the sides of buttes. A nest of this species on a building in Choteau is said to have been occupied for the past seventeen years. When I first arrived in Choteau, June 21, 1911, there were six young in this nest, that left the nest about July 4. The next year the owners returned April 28, sitting commenced on a set of seven eggs on May 23, the eggs all hatched on June 4, and the seven young were successfully reared and left the nest on June 23. A second brood was started and three eggs were laid by July 2.

**Nuttallornis borealis.** Olive-sided Flycatcher. Summer resident in the mountains, but not common. Rare migrant on the prairies. I secured a bird near Choteau, May 26, 1912.

**Myiochanes richardsoni richardsoni.** Western Wood Pewee. Abundant summer resident of cottonwood groves on the prairies. Migration dates: June 6, 1912, and August 13, 1911.

**Empidonax trailli trailli.** Traill Flycatcher. Rare summer resident. Observed on Willow Creek, northern Lewis and Clark County, June 30, 1911. A migrant bird secured near Choteau, May 24, 1912.

**Empidonax minimus.** Least Flycatcher. Abundant summer resident of cottonwood groves on the prairies. Migration date: May 22, 1912. Nesting

commences about the middle of June, the eggs hatch in about fourteen days, and the young are on the wing in the latter half of July.

***Empidonax hammondi*.** Hammond Flycatcher. Rare summer resident in the mountains. Seen on the West Fork of the Sun River August 12, 1912.

***Empidonax wrighti*.** Wright Flycatcher. Common summer resident in the mountains below 6000 feet. Abundant along the foothills.

***Otocoris alpestris arcticola*.** Pallid Horned Lark. Winter visitor on the prairie benches. Occurs in large flocks with Snow Buntings and Alaska Longspurs. Last seen in spring on March 10, 1912.

***Otocoris alpestris leucolaema*.** Desert Horned Lark. Abundant summer resident on the prairie benches. A few winter with the above species. The returning flocks of this bird are usually the first sign of spring. Migration dates: March 10, 1912, March 3, 1913. Young are first seen on the wing in the latter half of June, and again in August, which leads me to believe that there are two broods, one commencing early in May, and the second in July.

***Pica pica hudsonia*.** Magpie. Abundant permanent resident on the prairies, nesting in cottonwood groves and willow thickets. Occasionally found in the mountains in fall, but does not nest there. Nesting begins in April. In 1912 I found the first eggs April 7, and also took a set of fresh eggs May 26. Young are first seen out of the nest about June 1. In the winter, in this region, magpies frequently make use of their last year's nests as a shelter from the heavy winds.

***Cyanocitta stelleri annectens*.** Black-headed Jay. Permanent resident in the mountains. Not common.

***Perisoreus canadensis capitis*.** Rocky Mountain Jay. Permanent resident in the mountains. Somewhat less abundant than in southern Montana.

***Corvus corax principalis*.** Northern Raven. Permanent resident in the mountains. Rare in most places, but fairly frequent in the vicinity of Lubeck, along the southern border of the Glacier National Park.

***Corvus brachyrhynchos hesperis*.** Western Crow. Common summer resident, nesting in cottonwood groves and willow thickets, in the prairies. Nesting commences about the middle of May, and young are on the wing in the latter half of June. Migration date: April 2, 1912. Occurs rarely in winter.

***Nucifraga columbiana*.** Clarke Nutcracker. Abundant permanent resident in the mountains.

***Dolichonyx oryzivorus*.** Bobolink. Summer resident in the wet meadows of the prairie region. Abundant locally. Said to be increasing in numbers. Migration date: May 25, 1912.



Fig. 44. NEST AND EGGS OF SPOTTED SAND-PIPER.

**Molothrus ater ater.** Cowbird. Abundant summer resident on the prairies. In 1912, I found the eggs of this species in nests of the Brewer Blackbird, Chipping Sparrow, Vesper Sparrow, Black-headed Grosbeak, Cedar Waxwing and Yellow Warbler. Migration date: May 10, 1912.

**Xanthocephalus xanthocephalus.** Yellow-headed Blackbird. Summer resident of rush-grown sloughs on the prairies. Migration date: May 7, 1912.

**Agelaius phoeniceus fortis.** Thick-billed Redwing. Summer resident, nesting in cat-tail sloughs on the prairies. Migration date: April 15, 1912. On this date I found both sexes present, though it is usually stated that the females come later than the males. Nesting begins about the middle of May, and the first young may be found on the wing in the latter half of June. (See fig. 45.)

**Sturnella neglecta.** Western Meadowlark. Abundant summer resident of the prairies. Migration date: April 4, 1912. Nesting begins late in May, and nests with eggs may be found in the first half of June. Young out of the nest are first seen late in June. The young leave the nest when about ten days old. (See fig. 46.)

**Icterus bullocki.** Bullock Oriole. Rare summer resident. A pair nested in Choteau in 1911, but were not seen in 1912. A few other birds were seen occasionally in the cottonwood groves. Migration date: May 25, 1912.

**Euphagus cyanocephalus.** Brewer Blackbird. Abundant summer resident on the prairies. Nests most commonly in shrubby cinquefoil and wild rose bushes. Migration dates: May 8, 1912, September 18, 1911. Nesting begins in the later half of May. A colony of these birds nests in the cinquefoil bushes near Choteau. I found nine nests there in 1912. The eggs hatch in twelve days, and the young leave the nest when ten days old. Most of them are on the wing in the latter half of June. The birds do not raise a second brood to my knowledge, but live in flocks with their young for the remainder of the summer.

**Quiscalus quiscula aeneus.** Bronzed Grackle. I secured a pair of these birds near Choteau, May 25, 1912. They were the only ones I observed in the region, which must be about the western limit of their range in Montana. Grackles are not uncommon, however, a little farther south and east, at Great Falls.

**Pinicola enucleator montana.** Rocky Mountain Pine Grosbeak. A rare summer resident of the high mountains in the Hudsonian zone. I have observed it only a few times.

**Carpodacus cassini.** Cassin Purple Finch. Summer resident in the mountains in the Canadian and Hudsonian zones. Not common.

**Loxia curvirostra minor.** Crossbill. A flock observed near Lubeck, January 15, 1912.

**Leucosticte tephrocotis tephrocotis.** Gray-crowned Rosy Finch. Migrant in the mountains, and occasional winter resident on the prairies. Not common, but in large flocks when seen. Migration date: October 22, 1911.

**Leucosticte tephrocotis littoralis.** Hepburn Rosy Finch. Occurs with the above, but in smaller numbers.

**Acanthis linaria linaria.** Redpoll. Common winter visitor on the prairies. Migration dates: October 22, 1911, and April 23, 1912.

**Astragalinus tristis pallidus.** Western Goldfinch. Common summer resident of the prairie region, nesting in cottonwood groves. Migration date: May 23, 1912. Evidently does not nest until July.

**Spinus pinus.** Pine Siskin. Abundant summer resident in the mountains, nesting in lodgepole pine and Douglas fir forests, in the Canadian zone. Also found to a lesser extent in the Transition zone, nesting in cottonwoods along the foothills of the mountains.

**Plectrophenax nivalis nivalis.** Snow Bunting. Winter visitor on the prairies. Occurs in large flocks with the Pallid Horned Lark and Alaska Longspur.

**Calcarius lapponicus alascensis.** Alaska Longspur. Migrant and winter visitor, occurring on the prairies with the above species and the Pallid Horned Lark. Migration date: October 31, 1912.

**Calcarius ornatus.** Chestnut-collared Longspur. Summer resident on the prairies. Rather local in distribution, as I have observed it only in the neighborhood of Priest Butte, where it was first noted May 8, 1912. In this same locality I found a young bird just out of the nest, and a nest containing eggs, on June 23, 1912.

**Rhynchophanes mccowni.** McCown Longspur. Abundant summer resident on the prairies. In some places on the flat-topped prairie benches, this is the only bird to be found. Migration dates: October 16, 1911, and April 17, 1912. I believe that there are either two broods, or else the birds nest irregularly from the time of their arrival until late July. The evidence collected is as follows: The earliest nest I have record of was found May 22, 1912, when it contained two half-grown young, that left the nest on May 27. A second nest contained three fresh eggs on May 26, 1912. In 1911 I found a nest containing eggs on June 25. These eggs had not hatched on July 4, when I found another nest with eggs. On July 3, 1911, and again on July 17, I observed young birds out of the nest and barely able to fly. (See fig. 47.)



Fig. 45. NEST AND EGGS OF THICK-BILLED REDWING.

**Poocetes gramineus confinis.** Western Vesper Sparrow. Abundant summer resident in the prairie region, and in mountain meadows up to 6000 feet. Nesting begins early in June, and the first young are on the wing early in July. Migration dates: September 18, 1911, and April 29, 1912.

**Passerculus sandwichensis alaudinus.** Western Savannah Sparrow. Abundant summer resident of the prairie region, nesting in rather wet meadows. Migration date: April 30, 1912.

**Ammodramus bairdi.** Baird Sparrow. Observed in migrations September 4, 1911, and May 23, 1912. Possibly a summer resident. A sparrow nested in the grass about the borders of alkaline ponds which I was unable to identify. I heard the song, which was unfamiliar to me, frequently. I am not acquainted with the song of the Baird Sparrow, but believe it likely that it was this species.

**Chondestes grammacus strigatus.** Western Lark Sparrow. Seen once near Choteau, July 18, 1911.

**Zonotrichia leucophrys leucophrys.** White-crowned Sparrow.

**Zonotrichia leucophrys gambeli.** Gambel Sparrow. Apparently both of these birds are summer residents in the mountains, and migrants in the prairies. I observed *Z. l. leucophrys* very closely on the Teton River in the summer of 1911. These birds were about one of the Ranger Stations, and came to pick up oats in a corral where horses were fed. They became so tame, that they would almost eat out of my hand. In June, 1912, I secured specimens of *Z. l. gambeli* on Birch Creek. Two varieties of songs from this species are to be heard in this region, and I believe that they belong to the two different subspecies. The song which evidently belongs to *gambeli* is like that of *leucophrys*, but shorter, with three or four of the terminal notes omitted. I have never heard any but the longer song in southern Montana, where I believe only *leucophrys* breeds. Migration dates of birds seen in the prairies, without attempt to separate the two forms are: October 1, 1911, and May 8 to 28, 1912.

**Spizella monticola ochracea.** Western Tree Sparrow. Common winter visitor on the prairies. Migration dates: October 1, 1911, and April 3, 1912.

**Spizella passerina arizonae.** Western Chipping Sparrow. Common summer resident of evergreen forests in the mountains. Rarely a summer resident of cottonwood groves in the prairies. Common in both places in migration. Migration date: May 18, 1912. Nesting begins early in June, and young are on the wing in July.

**Spizella pallida.** Clay-colored Sparrow. Abundant summer resident of the prairies, nesting in patches of cinquefoil and buffalo-berry bushes. Migration date: May 12, 1912.

**Spizella breweri.** Brewer Sparrow. Rare summer resident. I observed a pair of these birds in a patch of buffalo-berry bushes along the Teton River near Choteau, several times in June and July, 1912.

**Junco hyemalis hyemalis.** Slate-colored Junco. Rare migrant on the prairies. Observed November 7, 1912, near Choteau.

**Junco hyemalis montanus.** Montana Junco. Common summer resident in the mountains. Rather rare migrant on the prairies. Migration date: April 2, 1912. In this region the great variety of juncos, so common in southern Montana during migrations, is lacking. Probably most of the other forms breed farther to the westward, and move that way as they go north, thus entirely avoiding this region.

**Melospiza melodia montana.** Mountain Song Sparrow. Rare summer resident, in the mountains, in willow thickets along streams. Seen most frequently in the southern part of the region, which is probably about the northern limit of its breeding range. A migrant song sparrow was observed near Choteau, May 8, 1912. My attempt to secure this bird failed, but I believe it probable that it belonged to another race, perhaps *M. m. juddi*.

**Melospiza lincolni lincolni.** Lincoln Sparrow. Common summer resident

in the mountains, nesting in willow thickets along streams in the Canadian zone. Migration date: May 30, 1912, on Dupayer Creek.

***Passerella iliaca iliaca*.** Fox Sparrow. I observed a bird that was evidently of this subspecies in Hannan Gulch on the Sun River, October 18, 1911. The bird was in a dense aspen thicket and approached to within three or four feet of me.

***Passerella iliaca schistacea*.** Slate-colored Fox Sparrow. Rare summer resident in the mountains, nesting in dense willow thickets along streams. This is evidently close to the northern limit of the breeding range on this side of the continental divide. I observed the species most frequently on the Sun River and on Willow Creek, in northern Lewis and Clark County.

***Pipilo maculatus arcticus*.** Arctic Towhee. Common summer resident of



Fig. 46. NEST AND EGGS OF WESTERN MEADOWLARK.

willow thickets on the prairies. Migration date: May 12, 1912.

***Zamelodia melanocephala*.** Black-headed Grosbeak. Common summer resident of willow thickets on the prairies. Begins nesting the middle of June. Young are on the wing the latter half of July. Migration date: June 7, 1912. (See fig. 48.)

***Passerina amoena*.** Lazuli Bunting. Summer resident. Not common, but most frequent along the foothills of the mountains in the southern part of the region.

***Calamospiza melanocorys*.** Lark Bunting. Summer resident on the prairies. Rare during my stay, but information indicates that here as well as elsewhere in Montana, these birds were very abundant in the year 1907.

**Piranga ludoviciana.** Western Tanager. Common summer resident in the mountains. Nests in fir forests. Migration dates: August 28, 1911, on the Sun River, and June 4, 1912, on Birch Creek.

**Petrochelidon lunifrons lunifrons.** Cliff Swallow. Abundant summer resident of the prairies. Nests commonly both on buildings and on the steep sides of buttes. People in Choteau destroy their nests as fast as they are built, believing that the birds carry bed-bugs. My observations seem to show that the birds will not nest on wooden buildings that are kept painted, preferring either stone buildings or unpainted wooden ones. Migration date: June 7, 1912.

**Hirundo erythrogastra.** Barn Swallow. Summer resident on the prairies. Occurs regularly in small numbers but is not common. Migration date: June 7, 1912.

**Tachycineta thalassina lepida.** Northern Violet-green Swallow. Summer resident in the mountain canyons. Most common in the southern part of the region and rare northward. These birds are known as "Rock Swallows" in this region.

**Riparia riparia.** Bank Swallow. Common summer resident in the prairie region. Colonies are very common along the steep clay banks of the rivers. Migration date: May 26, 1912.

**Stelgidopteryx serripennis.** Rough-winged Swallow. Common summer resident. Nests in clay banks along the rivers, usually as single, scattered pairs, but I have seen several pairs nesting in a colony with the above species. Migration date: May 22, 1912. This swallow was fairly abundant for several days before the other species arrived.

**Bombycilla garrula.** Bohemian Waxwing. Common winter visitor both on the prairies and in the mountains, being most abundant along the foothills of the mountains. Occurs in the mountains rarely in summer and probably breeds (see CONDOR, xiv, 1912, p. 224). Migration date: March 30, 1912.

**Bombycilla cedrorum.** Cedar Waxwing. Common summer resident on the prairies and in the lower mountain canyons, below 5000 feet. Migration date: June 23, 1912. Nesting generally begins the middle of July, but I found one nest at Choteau that was half built on June 28, and in which the four eggs were laid July 5 to 8.

**Lanius borealis.** Northern Shrike. Winter visitant. I found it rare in the winter of 1911-12, and saw none at all in 1912-13. From a few observations in other parts of the state I am inclined to think that these birds were rare all over the state in these two years. Migration date: October 16, 1911.

**Lanius ludovicianus excubitorides.** White-rumped Shrike. Summer resident of the prairie region. Quite common in the summer of 1911, but seen only once in 1912. This occurrence was at Choteau on April 9, when the bird had evidently just arrived. My migration dates for this species in Montana are quite variable, and lead me to believe that this is due to a wide difference in the migration dates of the two subspecies occurring in the state. *L. l. excubitorides* evidently breeds only in valleys of the Transition zone, below 4500 feet elevation, arriving early in April, as shown by the above date, and by another record, April 9, 1911, at Helena, at an elevation of about 4000 feet. The other subspecies *L. l. migrans*, is evidently a migrant only, occurring in the upper Transition zone, about 5000 feet elevation, in May. The evidence to show this is certain only in the case of a bird taken at Anaconda, May 14,

1911 (CONDOR, xiv, 1912, p. 30), but I now believe that the birds seen by me in Gallatin County in May (Auk, xxviii, 1911, p. 46), also belong to this subspecies.

**Vireosylva olivacea.** Red-eyed Vireo. Summer resident in the prairie region, nesting in cottonwood groves. Rare north of the Sun River and not very common there.

**Vireosylva gilva swainsoni.** Western Warbling Vireo. Common summer resident in aspen groves in the mountains up to about 5500 feet. Most abundant along the foothills. Found all summer in cottonwoods in the prairies, but in small numbers.

**Lanivireo solitarius cassinii.** Cassin Vireo. Observed on the West Fork of the Sun River, at an altitude of about 5500 feet, on September 3, 1912.

**Vermivora celata celata.** Orange-crowned Warbler. Common summer



Fig. 47. NEST AND EGGS OF MCCOWN LONGSPUR.

resident of aspen groves in the mountains from the lower foothills to about 6000 feet.

**Dendroica aestiva aestiva.** Yellow Warbler. Abundant summer resident of cottonwood groves and willow thickets in the prairie region. Migration dates: May 22, 1912, August 18, 1911. Nesting begins early in June and young are on the wing about the first week in July.

**Dendroica auduboni auduboni.** Audubon Warbler. Common summer resident of evergreen forests in the mountains, occurring throughout the Canadian zone.

**Dendroica striata.** Blackpoll Warbler. Common migrant in cottonwood groves in the prairie region. Observed near Choteau in considerable numbers May 22 to 25, 1912. This region is probably at about the western limit of the migration range of this species in Montana.

**Oporornis tolmiei.** MacGillivray Warbler. Common summer resident of willow and wild-rose thickets in the foothills and lower mountains, up to 5000 feet. Occurs in the prairies in migrations. Migration date: May 23, 1912.

**Geothlypis trichas occidentalis.** Western Yellowthroat. Common summer resident of the prairie region and foothills, usually in willow thickets. On the prairies I have also heard the birds singing in the rushes on the borders of sloughs, and believe that they nest there. Migration date: May 19, 1912.

**Wilsonia pusilla pileolata.** Pileolated Warbler. Common summer resident of willow thickets in the mountains, from the foothills to 6000 feet. Common migrant in the prairie region. Observed in migration at Choteau, May 22-28, 1912, and on the Sun River August 26-28, 1911.

**Setophaga ruticilla.** Redstart. Summer resident of the willow thickets along the foothills and in the lower mountain canyons up to 5500 feet. Much more common as a migrant, when it also occurs in the prairie region. Observed in migration at Choteau, May 22-28, 1912.

**Anthus rubescens.** Pipit. Migrant in the prairie region. Occurs in large flocks with horned larks and McCown Longspurs, and feeds about the borders of alkaline ponds. Migration dates: September 17 to October 1, 1911.

**Anthus spraguei.** Sprague Pipit. Common summer resident of the prairies. Appears to prefer neither the dry prairie benches, nor the rich grass meadows, but occurs about the borders of ponds, or in hollow depressions in the prairie where the soil is moist, but too alkaline to be clothed with a tall thick growth of grasses. The bird itself is very difficult to see and observe, but the song is one of the commonest sounds on certain parts of the prairies in June and July. Migration date: May 23, 1912.

**Cinclus mexicanus unicolor.** Dipper. Permanent resident on mountain streams. Occurs in the vicinity of waterfalls in summer, but winters in places where the fall of the stream is not so steep, and yet where the current is swift enough to keep open water all winter. Begins nesting late in May.

**Dumetella carolinensis.** Catbird. Common summer resident in willow thickets on the prairies, and, along the foothills of the mountains, in thickets of wild-rose. Migration date: May 23, 1912.

**Salpinctes obsoletus obsoletus.** Rock Wren. Summer resident. Occurs in rocks about the edges of prairie buttes, and in the lower mountain canyons up to 5000 feet. Rather rare. Migration date: May 27, 1912.

**Troglodytes aedon parkmani.** Western House Wren. Common summer resident of the prairies, nesting about buildings and in dead stumps in cottonwood groves. Migration date: May 19, 1912.

**Nannus hiemalis pacificus.** Western Winter Wren. Rare summer resident of spruce forests in the mountains. A pair, with brood of young, were observed on Beaver Creek, in the Sun River country, on June 29, 1911. A single bird observed on Birch Creek, May 31, 1912.

**Certhia familiaris montana.** Rocky Mountain Creeper. Occurs rarely in spruce forests in the mountains. All my records are from about the headwaters of the Sun River, and are between August 29 and September 8, so I am doubtful if the species is more than a migrant here.

**Sitta carolinensis nelsoni.** Rocky Mountain Nuthatch. Summer resident in the mountains. Occurs in Lodgepole Pine and Douglas Fir forests in the Canadian zone, and in White-bark Pine forests in the Hudsonian zone.

**Sitta canadensis.** Red-breasted Nuthatch. Migrant. Common in the

mountains in late August and early September. Rare on the prairies, where I observed it near Choteau, May 25, 1912.

***Penthestes atricapillus septentrionalis*.** Long-tailed Chickadee. Common permanent resident of willow thickets in the prairie region, and in the lower mountain canyons up to 5000 feet.

***Penthestes gambeli gambeli*.** Mountain Chickadee. Common permanent resident of pine and fir forests in the mountains.

***Penthestes hudsonicus hudsonicus*.** Hudsonian Chickadee. Probably a rare permanent resident of spruce forests in the mountains. I observed it but once, when I found a pair, accompanied by six nearly full-grown young, in a dense spruce thicket on the South Fork of the Teton River, at an altitude of 6000 feet.

***Regulus satrapa olivaceus*.** Western Golden-crowned Kinglet. Common summer resident of spruce forests in the mountains.

***Regulus calendula calendula*.** Ruby-crowned Kinglet. Common summer resident of fir forests in the mountains. Migrant in willow thickets in the prairies, where I observed it, near Choteau, May 25, 1912.

***Myadestes townsendi*.** Townsend Solitaire. Common summer resident about steep cliffs and rocky ridges in the mountains.

***Hylocichla fuscescens salicicola*.** Willow Thrush. Summer resident of willow thickets in the prairies. Most abundant along the foothills in the mountains. Common in Lewis and Clark County, but becoming rare northward in Teton County.

***Hylocichla ustulata swainsoni*.** Olive-backed Thrush. Abundant summer resident in the mountains,

and abundant migrant in cottonwood groves on the prairies. Migration dates: May 22, 1912, August 21, 1911, and September 4, 1912. The latter two dates are from the mountains about the headwaters of the Sun River.

***Hylocichla guttata auduboni*.** Audubon Hermit Thrush. Rare migrant. I observed it near Choteau, May 18 and 23, 1912, and on the West Fork of the Sun River, September 12, 1912. Have not observed it here in summer in the mountains, as I have in southern Montana.

***Planesticus migratorius propinquus*.** Western Robin. Abundant summer resident in cottonwood groves in the prairies, and in pine and fir forests in the mountains up to 5500 feet. Migration dates: March 28, 1912, and October 29, 1911. Begins nesting in the latter part of May. The eggs take about fourteen days to hatch, and the young leave the nest in about ten or eleven days more, so that young are seen on the wing by the middle of June. The



Fig. 48. NEST AND THREE EGGS OF BLACK-HEADED GROSBEEK, WITH ONE EGG OF THE COWBIRD.

birds usually start a second brood about this time, the young of which appear late in July.

***Sialia currucoides*.** Mountain Bluebird. Common summer resident of the foothills, but not common far into the mountains. More rare in the prairies, but fairly common locally about Choteau, where it nests in and about buildings. Migration date: March 28, 1912. Nesting begins about May 10. Two broods are usually reared.

*West Haven, Connecticut, December 21, 1913.*

## FROM FIELD AND STUDY

**California Murre at Newport Beach, Orange County, California.**—On January 28 of the present year, while looking for sea-birds which might have been washed up by the storm which swept the coast for ten days or more, I found a very "sick" Murre (*Uria troille californica*) sitting near the water's edge. The bird was captured after a short chase and its lower parts were found to be soaked with oil. This would argue that it had been blown south from the San Francisco Bay region, where so many birds fall victims to the oil thrown from the tank steamers, and was not a regular visitant this far south.

The main sufferers from the blow were the Cassin Auklets (*Ptychoramphus aleuticus*), nine being found in three miles of beach. Mr. A. B. Howell saw about forty in five miles of beach at Bay City a day or so previously. It is probably as much because of the inability to feed on very rough water as the battering they receive that so much havoc is caused among the Auklets; for all were extremely emaciated and the stomachs empty.—ADRIAAN VAN ROSSEM, *Pomona, California*.

**Return of a Western Flycatcher to a Particular Locality.**—During the spring and summer of 1913 a Western Flycatcher (*Empidonax difficilis difficilis*), inhabiting the laurels and live oaks along Strawberry Creek near the Faculty Club, attracted my attention by its note. This differed from that of all other birds of this species which I have observed, in that the usual single note of rising inflection was preceded and succeeded by single short monotonous notes. This year (1914) the same note has been heard almost daily in the same locality. I believe, therefore, that the identical bird has returned to the same haunts that it occupied during the previous year. If this be true we have here another exhibition of the homing instinct in birds.—TRACY I. STORER, *Department of Zoology, University of California, Berkeley, California*.

**Red-winged Blackbird on the Sierras in Winter.**—While sleighing to Donner Lake from Truckee on February 28, last, I was much struck by the absence of bird-life, only a couple of small birds flitting through some pines, having been seen. Unfortunately, it was impossible to form even an idea of the identity of these.

Upon approaching the lake, a solitary male Red-wing flew up from the snow into a nearby pine, which act was repeated as we set forth upon the return journey. The bird each time was within a few feet of the sleigh, and it was readily seen that its plumage was quite ragged; also that the red shoulder patches were quite heavily barred with buff.

Even with the probability that the bird had been forced to remain in such severe winter quarters through injury, its presence in such a locality upon the date mentioned seems worthy of record.—JOHN W. MAILLIARD, *San Francisco, California*.

**Desert Sparrow near Claremont, California.**—On March 14, 1914, while collecting in the brush north of here, I shot an adult male *Amphispiza bilineata deserticola*. As Mr. Willett, in his "Birds of the Pacific Slope of Southern California", mentions this sparrow as but an occasional visitant to this region, I thought the above instance worthy of note.—WRIGHT M. PIERCE, *Claremont, California*.

**Least and Western Sandpipers Summering in San Diego County, California.**—On July 12, 1908, while collecting at a small alkaline lake near San Luis Rey, I took one *Pisobia minutilla* and two *Ereunetes mauri* from a small flock of about a dozen individuals. They are apparently in complete breeding dress with the exception of the wings which are similar to those of winter specimens.—ADRIAAN VAN ROSSEM, *Pomona, California*.

**Ferruginous Rough-leg at Los Angeles.**—On investigating the reason for several gunshots heard within one hundred and fifty yards of the La Brea fossil pits, on December 8, last, I secured a beautiful specimen of the Ferruginous Rough-leg (*Archibuteo ferrugineus*) that had just been killed by a rancher whose poultry it was threatening. It proved to be a female of the year and in perfect plumage. Its crop was entirely empty, which probably explains the boldness of the bird in invading a locality bristling with oil derricks and with the noise of pumping engines all about. The rancher told me later that there was a pair of the hawks, but the other vanished when this one was killed.—L. E. WYMAN, *Museum of History, Science, and Art, Los Angeles, California*.

**Variation in Coloration of Male House Finches.**—In a series of skins of *Carpodacus mexicanus frontalis* that I collected near Claremont during March, 1914, I find the coloration of the males to vary greatly. One specimen has a distinct white band back of the head, and is dirty white on the throat, with several white, red, and brown feathers on his head. The rump of this bird is an especially brilliant red. The breast is reddish. In the rest of the series the red coloration of the head, neck, breast and rump runs through several shades of red, pink, and salmon to a dirty pale lemon yellow.—WRIGHT M. PIERCE, *Claremont, California*.

**Notes from the San Bernardino Mountains.**—The following notes may be of interest, as they contain several records of species new to the San Bernardino mountain region of southern California. These notes were made in the summer of 1910.

*Dafila acuta*. Pintail. Common at Bear Lake, August 25 and 26.

*Spatula clypeata*. Shoveller. Common at Bear Lake, August 25 and 26.

*Helodromas solitarius cinnamomeus*. Western Solitary Sandpiper. Two birds of the year in fresh fall plumage were taken at Bear Lake, August 26. They were accompanied by a third individual and were feeding on a mud flat at the edge of the tules. Two more were seen but not secured.

*Lophortyx californica vallicola*. Valley Quail. This quail was met with commonly in the brushy hills between Oak Glen and Beaumont. About 3000 feet altitude seemed to be the limit of its range. Few quail were met with between 3000 and 5000 feet. At the latter altitude Plumed Quail (*Oreortyx picta plumifera*) were rather abundant.

*Aluco pratincola*. Barn Owl. While at Oak Glen a rancher told me of a curious owl which had nested for two years in an oak near his barn. Investigation showed it to have been of this species. Though the young had flown at this late date (July 1), the numerous feathers in the cavity and on the ground nearby left no doubt as to the identity of the species. This altitude (5280 feet to be exact) is by far the highest at which I have encountered this bird.

*Corvus brachyrhynchos hesperis*. Western Crow. Several were seen chasing a Western Red-tail in a small sycamore canyon about half way between Oak Glen and Beaumont.

*Passerella iliaca megarhyncha*. Thick-billed Sparrow. One specimen taken at Seven Oaks, September 25.

*Passerella iliaca schistacea*. Slate-colored Sparrow. One specimen taken at Seven Oaks, September 25.

*Progne subis hesperia*. Western Martin. A colony of about twenty pairs was nesting in a large dead pine near Oak Glen. Several smaller colonies were found in the surrounding country.

*Dendroica occidentalis*. Hermit Warbler. An immature bird taken August 1, two immatures August 2, adult male August 11, immature August 13 and an adult male August 31. The young birds were in new fall plumage and all were without doubt migrants.

*Columba fasciata fasciata*. Band-tailed Pigeon. At the time of my arrival at Oak Glen, June 25, Band-tailed Pigeons were not common, though they had evidently been

abundant a short time before. One rancher told me of having killed forty in a morning's hunt, and the amount of feathers found under several of the larger oaks was good evidence that the story was not exaggerated. He also told me of having found several birds in a dying condition from having their crops perforated by acorns on which they had been feeding. The only bird shot by me, however, had recently been feeding exclusively on tame red cherries. Pigeons were seen nowhere else in the mountains.

*Poocetes gramineus confinis*. Western Vesper Sparrow. A Vesper Sparrow presumably of this subspecies was seen in a little mountain meadow near the government nursery near Seven Oaks, September 20.

*Zonotrichia leucophrys gambeli*. Gambel Sparrow. Rather common at Seven Oaks. The date of arrival is not known to me and they were still numerous when I left, the 1st of October.

*Zonotrichia coronata*. Golden-crowned Sparrow. Less abundant than the last named species but still tolerably common.

*Porzana carolina*. Sora. One specimen taken at Bear Lake, on August 26.

*Podilymbus podiceps*. Pied-billed Grebe. At least two seen at Bear Lake on August 26. They were quite alone, while the Eared Grebes (*Colymbus nigricollis californicus*) were still in family parties, the young of which varied in size from apparently recently hatched to nearly full grown.

*Otus asio bendirei*. California Screech Owl. One of a pair taken near Seven Oaks on the evening of August 17, while I was passing through on the way to the higher mountains.

*Speotyto cunicularia hypogaea*. Burrowing Owl. Seen only in the cut-over grain fields between Oak Glen and Beaumont.

*Buteo lineatus elegans*. Red-bellied Hawk. At sunrise on the morning of September 19, one of these hawks flew screaming past my tent following the course of an alder-grown creek that runs by the government nursery near Seven Oaks. On being pursued it mounted high in the air, flying in swift circles and continually giving it's unmistakable call.

*Accipiter velox*. Sharp-shinned Hawk. Noted only once and then at Bluff Lake, August 22, when a juvenal attempted to snatch a bird from the skinning table not twenty feet from where I stood.—ADRIAAN VAN ROSSEM, Pomona, California.

**Early Nesting of the California Shrike.**—A nest of the California Shrike (*Lanius ludovicianus gambeli*) with six eggs, incubation begun, was observed two miles northwest of Colton, San Bernardino County, California, March 15, 1914. This is the earliest record that I know of.—W. C. HANNA, Colton, California.

**Additional Notes to Willett's "Birds of the Pacific Slope of Southern California".**—*Mimus polyglottos leucopterus*. Western Mockingbird. An early set of four eggs, incubation started, taken at Claremont, March 26, 1914.

*Heleodytes brunneicapillus couesi*. Cactus Wren. Five sets, incubation advanced to fresh, noted near Claremont, on March 24, 1914. These early sets show that the birds are probably nesting earlier this year because of the warm weather during March. In past years a nest in this locality before April was unusual.

*Phainopepla nitens*. Phainopepla. On March 18, 1914, I took a female and noted a male at Claremont.

*Tyrannus verticalis*. Arkansas Kingbird. One noted near Claremont on March 16, 1914, and two noted three miles south of Chino on March 22, 1914.

*Calypte costae*. Costa Hummingbird. On March 21, 1914, I took a male at Claremont.

*Buteo lineatus elegans*. Red-bellied Hawk. I took a set of three fresh eggs near Corona on March 22, 1914. Another pair was noted nesting in the same locality on the 2nd of April, 1914. On April 4, 1914, I found a nest of this bird near Fillmore. There were no eggs at this time, but the birds were both near the nest.—WRIGHT M. PIERCE, Claremont, California.

# THE CONDOR

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J. GRINNELL, Editor, Berkeley, California

HARRY S. SWARTH, Associate Editor

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## EDITORIAL NOTES AND NEWS

The latest etymological authority, Webster's New International Dictionary (G. & C. Meriam Co., 1913, page 1814) defines the word *resident* as follows: "Dwelling, or having an abode, in a place for a continued length of time; . . . 2. . . opposed to *nonresident*; . . . 2. Of birds, not migratory; nonmigratory." In essence the word means *sit*, or stay, and is allied to *sedentary*, as opposed to *migratory*. Birds are either *resident* or *migratory*; if they migrate they can not be resident; hence such an incongruity as *winter resident* is impossible! We admit that the term summer visitant, for a migratory species *breeding* in a given locality, is open to criticism; but *summer resident* is worse. Perhaps some one can suggest a correct term for this seasonal category, which will be acceptable to all of us. See Dawson, *antea*, page 119. Why do not the terms transient or sporadic visitant serve in all cases where the birds are not regular winter or summer visitants?

The one thing that perturbs the Editor more than any others of his worries is receipt of a manuscript from some well-meaning contributor, the appearance of which corroborates his accompanying note that he has "dashed down a few lines for our magazine", or that he "submits some space-filler" which can be "consigned to the waste-basket

if not needed". It is presumed that THE CONDOR prints only matter of scientific value or of popularly educative function. The magazine's pages had better be left blank than devoted to mere "space-filler", as such. The Editor welcomes and solicits well-considered, well-composed articles, whether of ten lines or ten pages.

The Cooper Club's membership, as shown in the roster concluding the present issue of THE CONDOR, numbered on April 1st, 1914, six honorary and 433 active members.

Dr. Barton W. Evermann, for many years connected with the Bureau of Fisheries at Washington, has been appointed Director of the Museum of the California Academy of Sciences. Dr. Evermann is a Cooper Club member, and his name is associated with the development of ornithology in California during the early 80's. From 1881 to 1886 seven articles were contributed from his pen to the *Ornithologist and Oologist* and to *The Auk*.

Mr. J. Eugene Law spent three weeks in the latter part of February and early March in the vicinity of Silver City, New Mexico, where a large part of his time was occupied in bird study and collecting.

## CONVENTION OF AMERICAN ORNITHOLOGISTS IN SAN FRANCISCO IN 1915

It will be good news to members of the Cooper Ornithological Club that at the annual meeting of the American Ornithologists' Union, held last month in Washington, it was decided to hold the next annual meeting in San Francisco in May, 1915. As to how many members will respond it is, of course, impossible at this early date to state, but that a considerable number will avail themselves of the opportunity to attend the convention, and the Panama Pacific Exposition also, is reasonably certain.

To a large degree it is up to the Cooper Ornithological Club to make the visit of our friends from the eastern states as pleasant and interesting as possible. One way to do this will be to hold a meeting jointly with the A. O. U., and to make it a record one. Many will remember the special joint meeting held here in 1903, which was such a success, and during which some friendships were made that have kept green ever since. Undoubtedly many members of the Southern Division of the C. O. C. can arrange to come up here to see the exposition at the time of holding this joint meeting. Every one must get to work and boost this proposition and make it a memorable success, for it is the chance of our young lives!

Few of our eastern cousins realize the great diversity in climatic, and hence in faunal and floral, conditions in California, and the great changes thereby brought about in our bird-life within comparatively short distances. We should plan so as to make this phase of our avifaunal conditions on the Pacific Coast of especial interest to our visitors. We must show them that

within a few miles there is quite a variety of "zones",—nearly all makes and brands of zones, in fact, except the extremes of Arctic and Tropical,—and let them see in person why the Pacific Coast is so attractive to the ornithologist who knows it, and why it is so important to know it well. We must make them see with their own eyes—not through the eyes of others—that a few hours on a train will take them from one zone to another in a way they never dream of east of the Mississippi.

We ought to have a joint meeting here in San Francisco with the whole of the C. O. C., and then one afterwards with the Southern Division for those who take in that part of the state. It is our duty to write to all the ornithological friends we have and impress upon them the advisability of their attending the convention here in 1915, to write *now*, and to keep on writing until we get them here.—JOSEPH MAILLIARD, *Chairman of A. O. U. Committee on Arrangements*.

#### THE REFERENDUM, THE INITIATIVE, AND THE WILD LIFE

The present outlook in California, as regards wild life conservation, is sufficiently serious to set one to thinking. It will probably set most Cooper Club members and CONDOR readers not only to *thinking*, but to *resolving*. These two effects, in conjunction with a third response to which they should naturally lead, that of *acting*, if experienced by a sufficient number of people, will bring our state safely through the crisis with regard to the wild life situation which confronts us.

The state legislature, in its last session, passed by a large majority the Flint-Cary bill prohibiting the sale of ducks and other game. The bill was then duly signed by Governor Johnson, and was thus in line to become law.

Only a comparatively short time had elapsed before certain interests, centering for the most part in the city and county of San Francisco, had successfully invoked the referendum on this law, which is now held up pending the final decision of the people in November.

Emboldened, perhaps, by the ease with which the referendum petition was drawn up and signatures obtained, a group of San Francisco commission merchants and market-men banded themselves together and organized the "People's Game Protective Association," ostensibly dedicated to the noble object of saving the wild game for the people.

Unfortunately the personnel of the executive committee of the People's Protective Association does not impress one as calculated to recommend it as a sincere and bona fide game protective organization. Barclay Henley, elected president, was at the time of his election attorney for John F. Corriea, commission merchant and game dealer. Mr. Corriea himself very generously allowed his

name to be used as vice-president. The secretary of the executive committee was Mr. F. M. Bailey, who, by a strange coincidence, was secretary also of Corriea's game corporation. Other members of the executive committee were John Campodonico and Cecil Raymond, San Francisco game dealers.

The next point of interest concerns the scheme whereby this group of market-men propose to administer the wild game of the state. To make a long story short, it now appears that by carefully placing the emphasis on other aspects of game legislation, and by earnestly insisting on strict regulation in other respects than those most intimately concerning themselves, the game dealers' organization has been able to propose that all game—deer, trout, quail, ducks, doves, grouse, everything—that all game be sold on the market, without arousing the opposition which is bound to arise, as soon as the people realize what is implied in the market-men's new game measure.

The San Francisco *Examiner* at once espoused the cause of the new organization. An initiative petition was drawn up, and at last accounts was to be taken to the people for signature. The present status of the petition is unknown, but there seems to be a considerable likelihood that this measure will appear upon the ballot in November along with the non-sale law.

A perusal of the stories apropos the activities of this organization, which have appeared in the San Francisco *Examiner*, indicates that the campaign in behalf of the sale-of-game initiative is being cleverly prosecuted. For example, it is proposed to cut down the bag-limit, to prohibit the baiting of ponds, to lay a heavy tax on gun clubs, as well as to permit everybody to buy game on the market. As a matter of justice, runs the argument in favor of the sale of game, the poor man who is unable to go shooting should have the privilege of buying on the market the game that he desires. Game is said to be chiefly valuable for its food content, and it is submitted that to freely permit the sale of game on the market will reduce the cost of living!

There is something to be said on the other side of this question. Prominent San Francisco butchers and market-men have asserted that could venison be sold on the market at the present time it would bring from \$1.00 to \$1.50 per pound. Quail were sold in San Francisco last year at \$1.00 to \$1.20 a pair, as was discovered by representatives of the Fish and Game Commission, who apprehended the violators and brought them to justice. A large proportion of all the ducks which enter the metropolis, and most of the ducks which are marketed are sold in the big cities, were purveyed by the highest class hotels and restaurants, canvasbacks and mallards being sold for from \$4.00 to \$5.00 per pair.

Under conditions like these there will have to be considerable evidence submitted,

and it will have to be far more cogent than any evidence heretofore put forth, before the advocates of the sale of game can be said to have proven their position as champions of the poor man. There seem always to be more lazy men with money, who insist upon their right to eat game regardless of conservation, than there are vigorous men with guns who appreciate the game more for its recreative than for its food value, and who believe in careful conservation.

Since the weight of practically all authority, governmental and scientific, is unequivocally in favor of laws prohibiting the sale of game, and since non-sale laws have become popular as game laws the country over, it is anticipated that the people, if warned as to the significance of these measures, will record their decision aright. The danger lies in the possibility that many voters will not adequately understand the propositions as they appear on the November ballot. Here lies the opportunity of all interested in the wild life.

The Referendum holding up the law prohibiting the sale of ducks and wild pigeons, in addition to other game, stands, and will appear on the ballot in November.

Efforts are now being made to place on the ballot an Initiative measure providing for the sale of deer, quail, trout, doves, ducks, grouse and other game.

What are we going to do in behalf of California's Wild Life?—WALTER P. TAYLOR, *Chairman Northern Division Committee on Conservation, C. O. C.*

#### PUBLICATIONS REVIEWED

A DETERMINATION OF THE ECONOMIC STATUS OF THE WESTERN MEADOWLARK (*Sturnella neglecta*) IN CALIFORNIA. By HAROLD CHILD BRYANT. (Univ. Calif. Publ. Zool., vol. 11, no. 14, pp. 377-510, pls. 21-24, 5 text figs. Published February 27, 1914.)

For some years past the Western Meadowlark has been a subject of contention in the California legislature, there having been several attempts, strongly supported, and as strongly opposed, to deprive the bird of its legal protection, leaving it subject to the onslaughts of the farmers who claimed that it was harmful, and of the hunters who wished to regard it as "game". Mr. Bryant's studies, carried on under the auspices of the California State Fish and Game Commission, were designed to ascertain the truth or falsity of the many contradictory statements that have been made regarding the bird, primarily in order that the Commission could shape its course intelligently in the future, in guiding any pertinent legislation. How thoroughly this work was done is shown in the published report here under consideration.

There are but few species of birds that have been given as close and critical scrutiny and study as has the subject of this paper, or that have had any one phase of

their existence reported upon in such detail. The results here tabulated and commented upon obviously represent an immense amount of painstaking labor and observation, and apparently leave little or nothing further to be said upon the subject. Many points in connection with the methods pursued are of decided interest, and in one regard at least, the author was exceptionally favored by the circumstances under which his studies were pursued. Working with the backing of the State Fish and Game Commission, he was enabled to call upon the entire force of wardens to supply him with material, hence he had the unusual advantage of extensive series of specimens obtained from whatever points, and at whatever seasons, seemed most desirable. This study, therefore, is noteworthy in that it is the result of observations on the food of a single species of bird, based on a large amount of material carefully and systematically gathered at the same localities at regular intervals throughout the year, many points within the state being represented in the collection.

The paper throughout presents every evidence of careful and painstaking work, intelligently directed, and Mr. Bryant's conclusions will probably be accepted unhesitatingly by every unbiased reader of his report. Of the methods used, examination of stomach contents is of primary importance, nearly two thousand Meadowlark stomachs having been subjected to scrutiny and analysis in the course of the work; this supplemented by careful field observation of wild birds. Although experimentation with caged birds is mentioned as sometimes desirable, we do not understand that anything of the sort was attempted in the present study, the nearest approach being the observation, weighing, etc., of nestlings.

Altogether, to one who has not specialized on the food of birds, it would seem as though the author had approached his subject from every possible angle, and had given due weight to every conflicting element, and due prominence to every different phase of the Meadowlark's existence. His verdict is that the bird deserves the protection at present accorded it, the damage done by the species being of small moment, at restricted localities, and for but a short period of the year, while the eating of insects goes on through all the seasons. Although the paper is primarily concerned with the food of the Western Meadowlark, it also has much to say on related subjects, the introductory chapters containing many pages dealing with the different methods used in the study of economic ornithology, and with the evolution of the study.

Of adverse criticism, but little suggests itself. The work evidently was most carefully done, and the results presented accurately, and in a fair and unbiased manner. To the non-specialist, however, several questions are sure to suggest themselves.

We are informed at some length of the advances that have been made in the methods used in such economic studies, and, as before remarked, there seems but little doubt that the author and other present day workers in the same field, use much more exact methods than were formerly in vogue. Also there is much said for and against methods used by different workers at the present day. These arguments would be much more impressive if it were not for the fact that the various different schools all seem to arrive at approximately the same results! Thus it is fair to say, that, giving Mr. Bryant all possible credit for working out and making known all manner of interesting details in regard to the Meadowlark, almost any intelligent observer and collector of birds would, from his own general observations, have arrived at approximately the same result, namely, that the bird does some little harm, more good, is an attractive feature of the region, and should not be sentenced to destruction. We do not mean at all to decry such studies as the one under consideration; but, to draw a simile from another field, in getting average dimensions of birds or mammals, it matters little whether one hundred or two hundred pertinent specimens be measured, the results will be about the same. Similarly, while such exhaustive studies as this one of Mr. Bryant's may yield many interesting facts, it is safe to say that the final decision thus reached will not be markedly at variance from what could be learned from a somewhat more cursory consideration of the subject. For immediate, practical use by a Commission seeking to apply the acquired information in the furtherance of legislation, it would seem that substantially the same results could be secured with a lesser expenditure of resources and energy. This, of course, in no sense militates against the excellence and desirability of Mr. Bryant's work, as here presented.

Another possible suggestion is that in some respects the paper might have benefited by being more rigidly confined to the limits indicated in the title. There are various discussions of greater or less length, of questions not particularly germane to the subject, containing some rather sweeping assertions which the author naturally can not here stop to discuss at any length, and which can not be considered as established facts. Thus, among other things, we are casually informed that birds from the northwestern coast region of California are appreciably darker in color than those from the southeastern part of the state (p. 478), and also that the number of young success-

fully raised is less than with most other birds (p. 404), statements which do not carry conviction, and which might well have been omitted. A possible weak place in the weighing of evidence is afforded in the tendency shown towards taking "rancher's verdicts" at face value when such are favorable to the birds, while antagonistic views are commented upon as though likely to have been based upon evidence that was "circumstantial" and "probably exaggerated".

These criticisms are all of relatively unimportant points, of course, which do not affect the general excellence of the paper. This is thoroughly deserving of all praise. A difficult and complicated problem is treated in a most competent and convincing manner. The tedious drudgery of stomach examination, and the patient care of field observation, are alike gone through with most accurately and painstakingly; while the resulting facts are weighed and assigned their due relative importance in a manner beyond criticism.

It is greatly to be regretted that circumstances did not permit the further pursuance of this work by the California State Fish and Game Commission, under the direction of Mr. Bryant, who has shown himself so well fitted for this line of investigation. In appearance, arrangement, etc., this paper leaves nothing to be desired, while the several excellent plates and text figures are well chosen and instructive.—H. S. SWARTH.

THE GANNET | a Bird with a History | by | J. H. GURNEY, F. Z. S. | Author of [two lines] | Illustrated with Numerous Photographs, Maps and | Drawings, and One Coloured Plate by Joseph Wolf | Witherby & Co. | 326 High Holborn, London | 1913 (our copy received November 25); frontispiece (colored distribution map), pp. li-567, 136 illustrations, unnumbered and chiefly in text, two colored. Publisher's price, 27/6 net.

The present tendency in ornithological study and literature towards concentrated attention upon single species cannot fail to gratify a very large proportion of our general scientific readers. It is not for a moment to be justly inferred that systematic, faunistic or morphologic lines of work are on the decline in importance, but that more nearly a balance of attention is being reached whereby the one-time threatened monopoly of the ornithological field by systematists and their literature is averted.

Of the several monographic treatises upon single bird species, which have appeared,

none has shown such exhaustive research along so many lines as the present. The Gannet, a conspicuous element in the pelagic avifauna of the North Atlantic, is herein dealt with by the eminent British ornithologist, J. H. Gurney. Many years of painstaking observation and bibliographic research are evidenced, and the result is rendered of the utmost interest as well as scientific value by an ingratiating literary style.

The student of North American birds finds the present book to approach much nearer his own field of interest than most volumes published abroad. For the Gannet ranges in summer, though rather restrictedly, along the northeastern shores of North America. The life history data in the present volume, however, although including practically everything known in regard to the bird in America, is chiefly based on its occurrence and history around the British Islands.

The reader will get an idea of the range of treatment from the following subjects suggested in chapter headings: names of the gannet; distribution; estimated number of gannets; nidification and incubation; the nestling; food and fishing; flight; mortality; gannets as food; plumage; osteology; parasites; historic and pre-historic. There is thus a great deal of matter pertaining to subjects of general interest outside of the bird under special consideration.

Mr. Gurney estimates the total number of Gannets (*Sula bassana*) now existing, at 101,000. Incidentally, the most abundant sea-bird of the North Atlantic is considered by him to be the Puffin (*Fratercula arctica*) which is to be numbered by the million—for instance, three million on St. Kilda alone; also 235,000 Puffins were annually gathered on the Faeroes up to the time when these birds became less esteemed for food. Yet only one egg is laid.

As furnishing further basis for estimating bird populations, some data is quoted as to numbers of birds marketed in various European cities. For example, 404,000 Skylarks were brought into Leipzig in one month. In Paris, alone, 1,419,891 Skylarks were sold in 1898; in 1909 the number had dropped to 355,000. The marvel in all these cases is as to the wonderful productivity of birds where conditions of food and climate are favorable, so that the enormous drafts upon their numbers by man are, for long periods, nearly or quite offset.

The Gannet, a bird of slowest breeding rate, was levied upon for hundreds of years by people living adjacent to their colonies.

As many as 28,300 annually, nine-tenths of them young, were formerly so appropriated around Great Britain. Small colonies of the birds have disappeared, but the more favorably situated nesting places held their own to a remarkable degree. With decreasing value of the young birds for food and feathers, and with governmental protection afforded against wanton destruction, the Gannet is now on the increase. The problems confronting the game conservationist here in California would doubtless be greatly aided in solution by a study of the history of the Gannet.

To Mr. Gurney we owe much for adding to our literature this most valuable and fascinatingly readable bird book.—J. GRINNELL.

FOUR NEW BIRDS FROM NEWFOUNDLAND. By HARRY C. OBERHOLSER. (Proceedings of the Biological Society of Washington, vol. xxvii, March 20, 1914, pp. 43-54.)

The forms here named and characterized are *Dryobates pubescens microleucus*, *Bubo virginianus neochorus*, *Perisoreus canadensis sanfordi*, and *Pinicola enucleator eschatosus*, the first confined to the island of Newfoundland, the others occurring also on nearby parts of the North American mainland. From Mr. Oberholser's study of the collection containing these birds, as well as from other work recently done in the same region, it would seem that Newfoundland is possessed of a fairly distinctive endemic fauna, and one containing certain points of decided interest. The Hairy and Downy woodpeckers of the island are both shown to have developed characters markedly at variance from those possessed by the related forms of the adjacent mainland, giving them a superficial resemblance to certain races from remote parts of western North America. The Newfoundland Pine Grosbeak is described as having assumed characters similar to those distinguishing the recently described Newfoundland Crossbill, *Loxia curvirostra perna* Bent, an interesting instance of parallel development. Altogether, from the preliminary and rather disconnected studies so far made, it would seem that Newfoundland offers a most promising field for careful, systematic research, such as has not yet been accorded it.

Mr. Oberholser's treatment of the forms described in the present paper is gratifying alike in the explicitness and attention to detail shown by the characterizations, and in the pertinence and suggestiveness of his general remarks; statements, however, that can as truthfully be made of nearly all his systematic work.—H. S. SWARTH.

GAME BIRDS AND GAME FISHES OF THE PACIFIC COAST. ILLUSTRATED WITH HALF TONES FROM PHOTOGRAPHS OF LIVE AND CAREFULLY MOUNTED BIRDS AND FISHES. By H. T. Payne. News Publishing Company, Los Angeles, California. Pp. 186, 67 full-page illustrations. "Copyrighted 1913"; our copy received January 21, 1914.

Under this title has recently appeared a small book by a well-known sportsman of Los Angeles, H. T. Payne. In his introduction Mr. Payne states that "unlike most works treating of the birds and fishes, this one is written from the standpoint of the practical sportsman and angler, rather than for the student of ornithology or ichthyology." Even with this excuse it is doubtful if the sportsman reader will overlook a number of things which certainly "jar" the student of birds. First, however, let us enumerate some of the commendable features of the book.

The frontispiece is a drawing of a duck with all parts labeled, together with a corner drawing illustrating the different measurements usually taken. The author has therefore been careful to use the type of bird about which the book largely treats rather than using the outline drawing of a song bird so often employed for this purpose.

The text is divided into two parts: "The game birds of the Pacific coast", and "The game fishes of the Pacific coast". The birds occupy the greater part of the book. Under each species heading is given two or three paragraphs on the distribution and habits of the species followed by the sub-headings: color, nest and eggs, measurements. Occasional, personal hunting notes, and suggestions as to methods in hunting, are also to be found. Tables giving the scientific name, common name, range, and breeding grounds are appended "for ready reference".

The illustrations are photographic reproductions of stuffed specimens with a painted-in background. This type of illustration distresses the eye when we only have to turn to other books to find reproductions of the same birds taken in the wild.

The author evidently used the A. O. U. *Check-list* for 1895, for he makes the following statement: "With the one exception of the California Valley Quail I have followed the plan of the American Ornithologists' Union. In this exception I have followed such good authorities as Bonaparte, Elliot, Ridgway, and Gambel, and given the California Valley Quail the generic name of *Lophortyx*, instead of classing them with the *Callipepla*, to which belong the scaled

quail, a species with no distinction between the sexes."

Such unfounded statements as the following one about the Mourning Dove, which so often go the rounds among sportsmen, are in evidence: "A large number of these birds begin their nesting season in the mountains at altitudes of from 2000 to 4000 feet, raising one brood at that height, then moving down and nesting again, and moving again until they reach the lower valleys, where they remain all winter, congregating in certain places in flocks of hundreds."

The editorial work is extremely poor. Innumerable misspelled words, poor grammar, headings transposed and upside down, etc., are to be found throughout the book. By looking on the cover the reader will receive the real staggering blow; for marked in good-sized type is: Price \$1.50 Net. A book 4½ by 7 inches, of 186 pages, printed on cheap paper, cheaply bound, and poorly edited, for one dollar and a half! Maybe the sportsman is willing to pay that much for such a book, but it certainly did not cost a third of that amount.—H. C. BRYANT.

#### MINUTES OF COOPER CLUB MEETINGS.

##### SOUTHERN DIVISION

FEBRUARY.—The regular meeting of the Southern Division was held at the Museum of History, Science, and Art, Los Angeles, Thursday evening, February 26, 1914. In the absence of the president, Vice-president Robertson took the chair. The attendance was as follows: Mrs. Frances M. Harmon and Miss Myrtle Johnson, and Messrs. Chambers, Daggett, Dawson, Edwards, Eggleston, Esterly, Grey, Howell, Jewett, Lamb, Miller, Morcom, Robertson, Snyder, Swarth, Willett, Wyman, and Zahn. Visitors present were, Mrs. H. S. Swarth, and the Misses Olive W. Kelso, Harriett S. King, Gertrude B. Peirson, Mabel B. Peirson, and Lucy Youse.

The minutes of the January meeting were read and approved, followed by the Northern Division minutes for February. New members elected were: Mrs. Minerva J. Fargo, Miss Etta V. Little, Miss Helen Powell, Miss Ada Wilson, and Messrs. Luther Little, L. R. Reynolds, and C. G. Stivers. One new name was presented, Mr. George W. Lane, Morganhill, California, proposed by J. Grinnell. The resignation of Lionel H. Duschak was read and accepted. A letter was read, received by Mr. Law from Professor J. N. Bowman, secretary of

the Pacific Association of Scientific Societies, urging the participation of the Cooper Club in the annual meeting of the Association in Seattle in May, 1914. It was not deemed practicable by the members present, however, and no steps were taken towards the holding of such a meeting.

The annual report of the business managers was then presented by Mr. Chambers, and points not clear to his hearers were explained at length by him. The summary shows a most satisfactory condition of the Club's finances, amply justifying the policies of the two business managers, and reflecting great credit upon their foresight and ability.

The business of the evening concluded, the members adjourned to the exhibition hall in the south wing of the building, where, upon an extemporised screen, Mr. W. Leon Dawson displayed a most remarkable series of slides of California birds. His talk was upon "The Sea- and Shore-Birds of Southern California", but the pictures of ducks, gulls, and other swimmers were but a prelude to the splendid representation of the waders. All but one of the California species were included in this collection of photographs, a large proportion in many different pictures, and the exhibition was a pleasure that was most highly appreciated by all present. The enjoyment of the evening was enhanced perhaps by the informal nature of the occasion, and by the free discussion following the exhibition of certain of the pictures. Adjourned.—H. S. SWARTH, *Secretary*.

MARCH.—The regular monthly meeting of the Southern Division was held at the Museum of History, Science, and Art, Thursday evening, March 26. President Law was in the chair, and the following members in attendance: Mrs. E. H. Husher, and Messrs. Appleton, Blain, Chambers, Daggett, Eggleston, Grey, Howell, Law, Little, Joseph Mailliard, Miller, Morcom, Rich, Robertson, Snyder, Swarth, Wood, and Wyman. Messrs. W. T. Doherty and F. R. Miner were visitors.

The minutes of the February meeting were read and approved, followed by the Northern Division minutes for March. Mr. George W. Lane, whose name was presented last month by Mr. Grinnell, was elected to membership. New names were proposed as follows: C. A. Brant, El Tovar, Grand Canyon, Arizona, presented by Mrs. E. H. Husher; William T. Martin, Oakland, by Dr. W. F. Bade; and Halstead G. White, Claremont, by Wright M. Pierce.

Mr. Mailliard, as a visitor from the North-

ern Division, was called upon for some remarks, and responded at some length, among other things contrasting the membership of, and the conditions surrounding, the two divisions of the Club. A little later, complying with the requests of several of the members, he detailed some of the methods of installation, cataloging, etc., used in the Mailliard collection of birds, nests, and eggs.

Mr. Law spoke briefly on the results of his recent collecting trip in New Mexico, during the first three weeks in March. Adjourned.—H. S. SWARTH, *Secretary*.

#### NORTHERN DIVISION

FEBRUARY.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held in Room 101, East Hall, Berkeley, California, Thursday, February 19, 1914, at 8 p. m. President Bryant was in the chair with the following members present: Mesdames Allen, Burnham and Grinnell, Misses Atsatt, Swezy and Wythe, Dr. Burnham, Messrs. Bade, Camp, Carriger, Cohen, Cooper, Grinnell, Rankin, A. G. Smith, Storer, and W. P. Taylor. The meeting was open to the public and about one hundred visitors were present.

The program of the evening was first presented. Dr. William Frederic Bade, editor of the *Sierra Club Bulletin*, spoke on "Birds of the High Sierras". On various trips with the Sierra Club, Dr. Bade has secured good photographs of mountain birds and many of these were shown by lantern slides. The Sierra Junco, Mountain Chickadee, American Dipper, Ruby-crowned Kinglet, Sierra Hermit Thrush, and Mountain Bluebird were especially well represented.

After the departure of the visitors at the close of the lecture the business was considered. The minutes of the January meeting were read and approved followed by the reading of the Southern Division minutes for January. Mr. Findlay Simmons was elected to membership. The application of William T. Martin, Plymouth Center, Oakland, California, proposed by Dr. W. F. Bade, and the names proposed at the Southern Division meeting for January were read. The resignations of E. Boyer, F. O. Pillsbury and A. G. Ulrich, were accepted, following the action of the Southern Division.

Mr. Grinnell read and commented upon the report of the Business Managers for 1913. The report shows a substantial increase in the business of the Club during the past year, and a general state of affairs most gratifying to all interested in the Club's welfare.

The election for Editor and Business Managers resulted in the unanimous re-election of the incumbents: J. Grinnell, Editor; W. Lee Chambers and J. Eugene Law, Business Managers. Adjourned.—TRACY I. STORER, *Secretary*.

MARCH.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, California, Thursday evening, March 19, 1914, at 8 p. m. President Bryant was in the chair with the following members present: Mesdames Allen and Grinnell, Misses Atsatt, Powell and Swezy, Messrs. Bryant, Carriger, Cooper, Silliman, Smith, Storer, W. P. Taylor, and Trenor. Mesdames Cooper, Mead, and Taylor, and Mr. Powell, were present as visitors.

The minutes of the Northern Division for February were read and approved and the minutes of the Southern Division for February were read. Mr. W. T. Martin, Oakland, California, and the persons proposed at the Southern Division in January were elected to membership. The names of Edna A. Andrews, 2233 Ellsworth St., Berkeley, California, and James Archibald MacDonald, Lathrop, California, both proposed by H. C. Bryant, Henry F. Bailey, 94 Pacific Avenue, Santa Cruz, California, proposed by O. P. Silliman, and the names proposed at the Southern Division in February, were read for the first time. The resignation of L. H. Duschak was read and accepted.

A communication from Prof. J. N. Bowman, Secretary of the Pacific Association of Scientific Societies, to Mr. Law, was read and considered. The Southern Division decided at its February meeting that as a body it would not be able to take part in the meeting of the Association in Seattle, May 21 to 23 of this year. The members of the Northern Division were of the same opinion. After discussion it was moved and carried that the Secretary be empowered to act for the Northern Division in communicating with the members of the Club residing in Oregon and Washington concerning such a meeting being arranged by those members.

President H. C. Bryant then delivered an address entitled "The Cooper Club Member and Scientific Work". This paper appears in full in the present issue of THE CONDOR (see page 101). Mrs. Grinnell exhibited a series of the Allan Brooks paintings which are intended for Dawson's work upon "The Birds of California". Adjourned.—TRACY I. STORER, *Secretary*.

## DIRECTORY OF MEMBERS OF THE COOPER ORNITHOLOGICAL CLUB

Revised to April 1, 1914

(Residence in California unless otherwise stated. Year following address indicates date of election.)

### HONORARY MEMBERS

- Allen, Dr. J. A., American Museum of Natural History, New York, N. Y. 1910.  
Beal, Prof. F. E. L., Biological Survey, U. S. Dept. Agriculture, Washington, D. C. 1910.  
Belding, Lyman, Stockton. 1896.  
Merriam, Dr. C. Hart, 1919 16th St., Washington, D. C. 1909.  
Ridgway, Robert, Route 7, Olney, Ill. 1905.  
Stephens, Frank, 3746 Park Blvd., San Diego. 1912.

### ACTIVE MEMBERS

- Adams, Ernest, Carlotta, Humboldt Co. 1896.  
Alexander, Annie M., 92 Seaview Ave., Piedmont. 1908.  
Allen, Amelia S., Mosswood Road, Berkeley. 1913.  
Allen, Arthur A., 115 Stewart Ave., Ithaca, N. Y. 1911.  
Anderson, Malcolm P., Menlo Park. 1901.  
Appleton, J. S., Simi, Ventura Co. 1901.  
Arnold, E., Freight Claim Agt., Grand Trunk Ry., Montreal, Quebec. 1909.  
Arnold, Ralph, 917 Union Oil Bldg., Los Angeles. 1893.  
Arnold, W. W., 504 N. Nevada Ave., Colorado Springs, Colo. 1911.  
Atkinson, W. L., 35 Hawthorne Way, San Jose. 1901.  
Atsatt, Sarah R., 345 S. Serrano Ave., Los Angeles. 1911.  
Bade, Wm. F., 2616 College Ave., Berkeley. 1903.  
Bagley, J., Box 46, Eureka. 1913.  
Bailey, Bernard, R. D. 1, Elk River, Minn. 1911.  
Bailey, Florence Merriam, 1834 Kalorama Rd., Washington, D. C. 1910.  
Bailey, H. H., Box 154, Newport News, Va. 1903.  
Bailey, Vernon, 1834 Kalorama Rd., Washington, D. C. 1904.  
Bales, Dr. B. R., 151 West Main St., Circleville, Ohio. 1906.  
Bangs, Outram, Museum of Comparative Zoology, Cambridge, Mass. 1910.  
Barbour, Rev. Robert, Y. M. C. A., Montclair, N. J. 1911.  
Barnes, R. Magoon, Lacon, Ill. 1908.

- Barrows, Albert L., 1430 Arch St., Berkeley. 1912.
- Barrows, Prof. Walter B., Box 183, East Lansing, Mich. 1909.
- Batchelder, Chas. F., 7 Kirkland St., Cambridge, Mass. 1910.
- Baynard, Oscar E., Clearwater, Fla. 1911.
- Beck, Rollo H., R. D. 21, San Jose. 1894.
- Beekman, Orland, Sespe, Ventura Co. 1911.
- Bell, W. B., Agricultural College, N. D. 1912.
- Bennett, R. H., Room 409, 444 Market St., San Francisco. 1909.
- Bent, A. C., Taunton, Mass. 1909.
- Bicknell, Mrs. F. T., 419 N. Broadway, Los Angeles. 1913.
- Bigelow, Homer L., Old Orchard Rd., Chestnut Hill, Mass. 1910.
- Bishop, Dr. Louis B., 356 Orange St., New Haven, Conn. 1904.
- Blain, Merrill W., 1026 N. Coronado St., Los Angeles. 1909.
- Blayney, Nita A., 920 O St., Fresno. 1911.
- Bliss, J. G., 2148 B, Clinton Ave., Alameda. 1908.
- Bohlman, Herman T., 202 Occident St., Portland, Oregon. 1903.
- Bolander, L. P., 2517 21st Ave., Oakland. 1907.
- Bowdish, B. S., Demarest, N. J. 1910.
- Bowles, J. H., "The Woodstock", Tacoma, Wash. 1903.
- Bradbury, W. C., 1440 Race St., Denver, Colo. 1913.
- Braislin, Wm. C., M. D., 556 Washington Ave., Brooklyn, N. Y. 1910.
- Brauer, W. G., Silver Lake. 1911.
- Brewster, William, 145 Brattle St., Cambridge, Mass. 1904.
- Brooks, Allan, Okanagan Landing, B. C., Canada. 1906.
- Brooks, L., Box 338, New Bedford, Mass. 1913.
- Brown, D. E., Room 11, Federal Bldg., Tacoma, Wash. 1909.
- Brown, Wm. J., 250 Oliver Ave., Westmount, Quebec, Canada. 1911.
- Brown, W. W., Jr., 543 E. Ocean Ave., Long Beach. 1909.
- Bryant, Harold C., Museum of Vertebrate Zoology, University of California, Berkeley. 1910.
- Buckland, Hon. James, Royal Colonial Inst., Northumberland Ave., London, England. 1912.
- Burnett, W. L., Box 691, Ft. Collins, Colo. 1910.
- Burnham, Dr. Clark, Bushnell Place, Berkeley. 1907.
- Burnham, Mrs. Clark, Bushnell Place, Berkeley. 1907.
- Burns, Frank L., Berwyn, Pa. 1909.
- Burt, H. C., Monolith, Kern Co. 1910.
- Burtch, Verdi, Branchport, N. Y. 1910.
- Buturlin, Sergius A., Wessenberg, Esthonia, Russia. 1909.
- Caduc, Eugene E., 563 Massachusetts Ave., Boston, Mass. 1911.
- Camp, Chas., 2334 Durant Ave., Berkeley. 1909.
- Carpenter, Nelson K., Box 127, Escondido. 1901.
- Carriger, Henry W., 5185 Trask Ave., Oakland. 1895.
- Carriker, M. A., Jr., Cincinnati Coffee Co., Santa Marta, Colombia, South America. 1911.
- Carruthers, Fred H., 532 Byrne Bldg., Los Angeles. 1913.
- Case, Rev. Bert F., Granby, Conn. 1913.
- Case, C. M., 7 Holcomb St., Hartford, Conn. 1911.
- Chamberlain, C. W., 36 Lincoln St., Boston, Mass. 1912.
- Chamberlain, W. J., 331 N. 5th St., Corvallis, Oregon. 1907.
- Chambers, W. Lee, Eagle Rock. 1897.
- Chandler, Asa C., Dept. of Zoology, University of California, Berkeley. 1912.
- Chapman, Frank M., American Museum of Natural History, New York, N. Y. 1903.
- Childs, John Lewis, Floral Park, N. Y. 1904.
- Clark, Josiah H., 238 Broadway, Paterson, N. J. 1910.
- Clarke, Frank C., Laytonville, Mendocino Co. 1912.
- Clay, C. Irvin, Box 353, Eureka. 1910.
- Clifton, H. T., 509 E. Walnut St., Pasadena. 1904.
- Coale, Henry K., Highland Park, Ill. 1907.
- Coffin, Sherwood, 35 2nd St., San Francisco. 1911.
- Coggins, Herbert L., 776 Mission St., San Francisco. 1910.
- Cohen, D. A., Alameda. 1894.
- Colburn, A. E., 806 S. Broadway, Los Angeles. 1905.
- Cooke, Wells W., Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1911.
- Cookman, Alfred, 1019 California Ave., Long Beach. 1912.
- Cooper, James S., 830 53rd St., Oakland. 1903.
- Craven, Jesse T., 811 Roosevelt Ave., Detroit, Mich. 1909.
- Crosby, Maunsell S., Grasmere Farms, Rhinebeck, N. Y. 1911.
- Culp, Chas. H., Pacific Grove. 1914.
- Currier, Ed. S., P. O. Drawer 21, St. Johns, Multnomah Co., Oregon. 1904.
- Daggett, Frank S., 2833 Menlo Ave., Los Angeles. 1895.

- Darlington, E. J., 2301 Monroe St., Wilmington, Delaware. 1911.
- Davenport, Mrs. Elizabeth B., Lindenhurst, Brattleboro, Vermont. 1911.
- Davis, Evan, Orange. 1894.
- Davis, J. M., 811 O St., Eureka. 1908.
- Dawson, W. Leon, R. D. 3, Box 83, Santa Barbara. 1906.
- Day, Chester S., 15 Chilton Rd., West Roxbury, Mass. 1910.
- Dean, W. F., Three Rivers. 1901.
- Deane, Ruthven, 135 Adams St., Chicago, Ill. 1904.
- Deane, Walter, 29 Brewster St., Cambridge, Mass. 1907.
- Dearborn, Ned., Linden, Maryland. 1909.
- Decker, F. R., Box 201, Prosser, Wash. 1913.
- Dial, Dr. E. A., 1837 N. Wilton Place, Los Angeles. 1913.
- Dickey, Donald R., Box 701, Pasadena. 1910.
- Dickey, Samuel S., 31 S. West St., Waynesburg, Pa. 1911.
- Dille, F. M., Wind Cave Park, Hot Springs, S. D. 1903.
- Dixon, Joseph, Escondido. 1904.
- Douglas, J. S., Bin 7, Bakersfield. 1911.
- DuBois, Alexander Dawes, 327 S. Glenwood Ave., Springfield, Ill. 1911.
- Dunbar, W. Linfred, care of Remington Arms Co., Bridgeport, Conn. 1911.
- Duprey, H. F., Dixon. 1907.
- Durfee, Owen, Box 125, Fall River, Mass. 1911.
- Dutcher, Wm., 990 Central Ave., Plainfield, N. J. 1905.
- Dutton, P. C., 26 Litchfield Rd., Stone Staffs, England. 1913.
- Dwight, Dr. Jonathan, Jr., 134 W. 71st St., New York, N. Y. 1904.
- Earle, Miss Eleanor P., Palma Sola, Manatee Co., Florida. 1911.
- Eastgate, Alf., Tohia, N. D. 1913.
- Eastman, Lieut. F. B., Plattsburg Barracks, New York. 1904.
- Edson, J. M., Marietta Rd., Bellingham, Wash. 1911.
- Edwards, H. Arden, R. D. 1, Box 254, Los Angeles. 1913.
- Eggleston, J. W., Occidental College, Los Angeles. 1913.
- Esterly, C. O., Occidental College, Los Angeles. 1908.
- Everett, E. E., Ventura. 1913.
- Evermann, Barton W., California Academy of Sciences, San Francisco. 1911.
- Fargo, Mrs. Minerva J., 1632 N. Kingsley Drive, Los Angeles. 1914.
- Fawcett, F. H., Narrows, Harney Co., Oregon. 1912.
- Finley, Wm. L., 651 E. Madison St., Portland, Oregon. 1900.
- Fischer, E. J., 525 W. 57th St., Los Angeles. 1910.
- Fisher, Dr. A. K., Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1904.
- Fisher, Miss Elizabeth W., 2222 Spruce St., Philadelphia, Pa. 1910.
- Fisher, Dr. Walter K., Box 373, Palo Alto. 1900.
- Fitzpatrick, T. J., Bethany, Nebraska. 1913.
- Flanagan, John H., 153 Power St., Providence, R. I. 1904.
- Fleming, J. H., 267 Rusholme Rd., Toronto, Ontario, Canada. 1910.
- Flint, Wm. R., R. D. 1, Box 221 C, Pasadena. 1912.
- Forrest, E. R., 357 N. Main St., Washington, Pa. 1910.
- Fortiner, J. C., Brawley. 1910.
- Fowler, Frederick H., 221 Kingsley Ave., Palo Alto. 1901.
- Fox, Mrs. L. L., Los Olivos, Santa Barbara Co. 1911.
- Frazier, J. F., Independence, Mo. 1911.
- Fuertes, Louis A., Cornell Heights, Ithaca, N. Y. 1904.
- Gage, Miss Mabel C., care Smith, Gage, and Dresser, Worcester, Mass. 1913.
- Gane, Henry Stewart, 1757 Orange Drive, Hollywood. 1903.
- Gardner, Leon L., Claremont. 1911.
- Gault, Benj. T., Glen Ellyn, Ill. 1905.
- Gay, Harold S., 200 S. Wilson Ave., Alhambra. 1901.
- Gee, Wilson P., University of South Carolina, Columbia, S. C. 1912.
- Gilman, M. French, Sacaton, Arizona. 1901.
- Goldman, E. A., Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1901.
- Goldman, Luther J., 2418 Prince St., Berkeley. 1908.
- Goodwin, Rev. S. H., Box 284, Provo, Utah. 1910.
- Gould, Jos. E., 5 Clifton St., Norfolk, Va. 1909.
- Grant, U. S., 4th, Box 113, Cambridge, Mass. 1909.
- Grey, Henry, 609 E. 2nd St., Los Angeles. 1901.
- Grinnell, Mrs. Hilda Wood, 2543 Durant Ave., Berkeley. 1912.
- Grinnell, Joseph, Museum of Vertebrate Zoology, University of California, Berkeley. 1894.
- Guion, Geo. Seth, Napoleonville, La. 1911.
- Halladay, Daniel S., 1609 N. Main St., Santa Ana. 1910.
- Hanford, Forrest, Santa Maria. 1912.
- Hann, H. H., Parkdale, Oregon. 1909.
- Hanna, Wilson C., Box 146, Colton. 1902.
- Harmon, Mrs. Frances M., Marlborough School, Los Angeles. 1912.

- Harris, R. Park, 321 Sprague Ave., Spokane, Wash. 1909.
- Hathaway, Harry S., Box 1466, Providence, R. I. 1912.
- Hawver, Dr. J. C., Box 214, Auburn. 1909.
- Hazard, R. G., Peace Dale, R. I. 1909.
- Head, Miss Anna, 66 E. 28th St., Portland, Oregon. 1912.
- Heinemann, Oluf J., 1662 Grove St., San Francisco. 1908.
- Heller, Edmund, U. S. National Museum, Washington, D. C. 1894.
- Helme, Arthur H., Miller Place, Suffolk Co., N. Y. 1911.
- Henderson, Hon. Junius, Box 398, Boulder, Colo. 1909.
- Henshaw, H. W., Biological Survey, U. S. Dept. Agriculture, Washington, D. C. 1909.
- Hersey, L. J., Wray, Colo. 1909.
- Hochbaum, Hans, 1436 Calumet Ave., Los Angeles. 1912.
- Holland, Harold M., Box 515, Galesburg, Ill. 1901.
- Hoover, Theodore J., 1 London Wall, London, E. C., England. 1898.
- Howard, O. W., Box 484, Los Angeles. 1895.
- Howell, Alfred Brazier, Covina. 1908.
- Howell, B. F., Jr., 6 North West College, Princeton, N. J. 1909.
- Howes, Paul G., Stamford, Conn. 1910.
- Howseley, L. B., Culver, Oregon. 1909.
- Hubbard, Samuel, Jr., 98 Montecito Ave., Oakland. 1912.
- Hubbs, Carl L., 720 Cowper St., Palo Alto. 1910.
- Huey, Lawrence, 32nd St. and Clay Ave., San Diego. 1909.
- Hunter, J. S., Union Hotel, San Mateo. 1903.
- Husher, Mrs. Gertrude H., 1041 Westlake Ave., Los Angeles. 1913.
- Illingsworth, J. F., College of Hawaii, Honolulu, H. T. 1896.
- Ingersoll, A. M., 832 5th St., San Diego. 1895.
- Irving, F. N., care of Southern Express Co., Columbia, S. C. 1910.
- Isham, C. Bradley, 27 W. 67th St., New York, N. Y. 1909.
- Jackson, Thos. H., 304 N. Franklin St., West Chester, Pa. 1911.
- Jacobs, J. Warren, 404 S. Washington St., Waynesburg, Pa. 1909.
- Jay, Alphonse, 1622 Pennsylvania Ave., Los Angeles. 1901.
- Jay, Antonin, 1622 Pennsylvania Ave., Los Angeles. 1901.
- Jeffreys, Chas., 15 Beaufort West, Bath, England. 1912.
- Jessee, Dr. R. L., Philo, Ill. 1909.
- Jewett, R. D., 1238 S. Serrano St., Los Angeles. 1912.
- Jewett, Stanley G., 582 Bidwell Ave., Portland, Oregon. 1909.
- Johnson, Frank Edgar, 16 Amackassin Terrace, Yonkers, N. Y. 1911.
- Johnson, Miss Myrtle, 450 N. Madison St., Pasadena. 1908.
- Jonas, Coleman, 1023 Broadway, Denver, Colo. 1910.
- Jones, Prof. Lynds, Museum of Oberlin College, Oberlin, Ohio. 1911.
- Jordan, A. H. B., Everett, Wash. 1911.
- Jordan, Dr. David Starr, Stanford University. 1902.
- Judson, W. B., 826 Washington Bldg., Los Angeles. 1894.
- Julien, Miss Lillian M., Yreka, Siskiyou Co. 1901.
- Kaeding, Geo. L., Battle Mountain, Nevada. 1903.
- Kellogg, Miss Louise, Box 371, Suisun. 1911.
- Kellogg, Prof. Vernon L., Stanford University. 1901.
- Kennard, Frederic Hedge, Dudley Rd., Newton Centre, Mass. 1911.
- Kennedy, C. H., Vinecrest Ranch, Sunnyside, Wash. 1912.
- Kermode, F., Provincial Museum, Victoria, B. C., Canada. 1911.
- Kessing, Lawrence R., 1430 Santa Clara Ave., Alameda. 1899.
- Keyes, Prof. Chas. R., Mt. Vernon, Iowa. 1900.
- Kimball, H. H., 523 E. Seaside Blvd., Long Beach. 1909.
- Knickerbocker, Chas. K., 445 Sacramento Ave., Carpenter Sta., Chicago, Ill. 1905.
- Knowlton, Dr. F. H., U. S. National Museum, Washington, D. C. 1910.
- Kofoid, Prof. C. A., East Hall, University of California, Berkeley. 1909.
- Kohler, Louis S., 98 Watsessing Ave., Bloomfield, N. J. 1909.
- Kuser, John D., Bernardsville, N. J. 1912.
- Lamb, Chester C., 549 W. 43rd Place, Los Angeles. 1899.
- Lancashire, Mrs. J. H., Alma, Mich. 1911.
- Lane, F. M., 346 Blackstone Ave., Fresno. 1911.
- Lane, Geo. W., Morgan Hill. 1914.
- Lastreto, C. B., 260 California St., San Francisco. 1913.
- Law, J. Eugene, Hollywood. 1900.
- Layne, J. Gregg, 232 S. Spring St., Los Angeles. 1912.
- LeBris, Miss Louise, 2569 Clay St., San Francisco. 1914.
- Leland, H. J., Court House, Los Angeles. 1897.
- Letchworth, Pierre E., Jr., Covina. 1912.
- Lewis, L. Alva, 809 Yeon Bldg., Portland, Oregon. 1912.
- Libby, Miss Gretchen L., 1331 Santa Barbara St., Santa Barbara. 1911.

- Lings, G. H., 208 Piermont Ave., Nyack, N. Y. 1913.
- Linton, C. B., 125 W. Ocean Ave., Long Beach. 1906.
- Litsey, John B., 1722 Alston Ave., Fort Worth, Texas. 1911.
- Little, Etta V., 413 E. Hadley St., Whittier. 1914.
- Little, Luther, 1625 W. Adams St., Los Angeles. 1914.
- Littlejohn, Chase, Redwood City. 1901.
- Loomis, Leverett M., California Academy of Sciences, San Francisco. 1902.
- Loshinski, John L., Zool. Dept., University of Wisconsin, Madison, Wis. 1912.
- Love, Chas. A., 3353 22nd St., San Francisco. 1901.
- Love, Guy, R. D. 5, Oberlin, Kansas. 1913.
- Lusher, Ernest E., Van Nuys. 1913.
- Luther, Clarence H., 8 McIlroy Bldg., Fayetteville, Ark. 1909.
- Magee, Wm. A., Jr., R. D., Box 433, Fruitvale, Oakland. 1912.
- Mailliard, Ernest C., 1815 Vallejo St., San Francisco. 1909.
- Mailliard, John W., 300 Front St., San Francisco. 1894.
- Mailliard, Joseph, 1815 Vallejo St., San Francisco. 1895.
- Marshall, Benj. M., 2036 D St., Eureka. 1913.
- Martin, John W., 339 N. 1st St., San Jose. 1907.
- Martin, William T., Pacific Theological Seminary, Berkeley. 1914.
- Massey, Herbert, Burnage, Didsbury, Manchester, England. 1909.
- Mathews, Dr. Ellen, 142 Kenwood St., Glendale. 1901.
- McAtee, W. L., Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1907.
- McGraw, Kate W., High School, Pacific Grove. 1912.
- McGregor, R. C., Bureau of Science, Manila, P. I. 1893.
- McLain, R. B., Market and 12th St., Wheeling, West Va. 1897.
- Mearns, Maj. Edgar A., U. S. National Museum, Washington, D. C. 1905.
- Meeker, Jesse C. A., 51 Washington Ave., Danbury, Conn. 1907.
- Meister, H. D., Wauseon, Ohio. 1909.
- Merrill, E. W., Sitka, Alaska. 1912.
- Mershon, W. B., Saginaw, Mich. 1911.
- Messenger, G. H., Linden, Iowa. 1910.
- Miller, Prof. Loye Holmes, State Normal School, Los Angeles. 1905.
- Miller, Mrs. Olive Thorne, 5928 Hayes Ave., Los Angeles. 1911.
- Miller, W. DeWitt, American Museum of Natural History, New York, N. Y. 1909.
- Miner, Dr. H. N., Mohawk, Plumas Co. 1903.
- Mitchell, Dr. Walton I., 603 Beacon Bldg., Wichita, Kansas. 1909.
- Moore, Chas. S., Box 222, San Diego. 1913.
- Moore, Robert T., 46 Mansion Ave., Hadonfield, N. J. 1911.
- Moran, R. B., 2221 Ward St., Berkeley. 1897.
- Morcom, G. Frean, care of C. R. Stanford, Huntington Beach. 1904.
- More, R. L., Vernon, Texas. 1911.
- Mueller, Carl, Marysville. 1911.
- Munk, Dr. J. A., 337½ S. Hill St., Los Angeles. 1909.
- Murie, O. J., 809 Yeon Bldg., Portland, Oregon. 1913.
- Myers, Mrs. H. W., 306 Ave. 66, Los Angeles. 1912.
- Nelson, E. W., Biological Survey, U. S. Dept. Agriculture, Washington, D. C. 1904.
- Newbury, F. E., 1454 Page St., San Francisco. 1904.
- Nichols, J. T., American Museum of Natural History, New York, N. Y. 1909.
- Nicholson, Donald J., Orlando, Florida. 1911.
- Noack, H. R., 309 Perry St., Oakland. 1901.
- Norris, Joseph P., Jr., 2122 Pine St., Philadelphia, Pa. 1911.
- Norris, Roy, 725 N. 10th St., Richmond, Indiana. 1911.
- Oberholser, Harry C., 1444 Fairmont St., N. W., Washington, D. C. 1904.
- Ohl, H. C., Los Banos. 1913.
- Ohlendorf, W. C., M. D., 1922 Blue Island Ave., Chicago, Ill. 1910.
- Osgood, Wilfred H., Field Museum of Natural History, Chicago, Ill. 1893.
- Overton, Mrs. Eugene, 651 W. 23rd St., Los Angeles. 1913.
- Owen, Virgil W., 1241 Vine St., Hollywood. 1896.
- Palmer, Mrs. Elizabeth Day, 1741 Harvard Blvd., Los Angeles. 1909.
- Palmer, Dr. T. S., 1939 Biltmore St., Washington, D. C. 1903.
- Parker, Edwin S., 1737 Euclid Ave., Berkeley. 1913.
- Parker, Herbert, South Lancaster, Mass. 1911.
- Paul, Lucius H., 202 Edinburgh St., Rochester, N. Y. 1911.
- Peabody, Rev. P. B., Blue Rapids, Kansas. 1904.
- Pearson, T. Gilbert, 2257 Loving Place, New York, N. Y. 1910.
- Peck, Morton E., 244 N. 12th St., Salem, Oregon. 1909.
- Pemberton, J. R., 71 Ciarendon Ave., San Francisco. 1900.
- Pennock, Chas. J., Kennett Square, Chester Co., Pa. 1909.

- Peyton, Lawrence, Sespe. 1909.  
Peyton, Sidney B., Sespe. 1913.  
Phelps, Frank M., 212 4th St., Elyria, Ohio. 1912.  
Philipp, Philip Bernard, 220 Broadway, New York, N. Y. 1911.  
Phillips, Don C., 49 Main St., Napa. 1912.  
Phillips, John C., Knobfields, Wenham, Mass. 1911.  
Pierce, Wright M., Box 116, Claremont. 1902.  
Pierpont, Philip, Nordhoff. 1913.  
Pilsbury, Frank O., 90 Main St., Walpole, Mass. 1911.  
Pleasants, Mrs. J. E., R. D. 3, Orange. 1900.  
Pomeroy, H. K., R. D. 4, Kalamazoo, Mich. 1909.  
Pope, E. F., Colmesneil, Texas. 1913.  
Powell, Miss Helen, 2703 Dwight Way, Berkeley. 1914.  
Price, A. E., Grant Park, Ill. 1905.  
Radir, Paul L., 335 W. 27th St., Los Angeles. 1913.  
Randolf, Miss Flora A., 2962 Derby St., Berkeley. 1907.  
Rankin, Edward P., 2611 Durant Ave., Berkeley. 1913.  
Rathbun, S. F., 217 14th Ave., N., Seattle, Wash. 1904.  
Ray, Milton S., 220 Market St., San Francisco. 1899.  
Redington, A. P., Box 66, Santa Barbara. 1897.  
Renick, Frank H., 1424 Belmont Ave., Seattle, Wash. 1912.  
Reynolds, L. R., care of Railroad Commission, 833 Market St., San Francisco. 1913.  
Rich, Guy C., M. D., 1820 El Cerrito Place, Hollywood. 1911.  
Richards, E. B., 412 Kate Hayes St., Box 805, Grass Valley, Nevada Co. 1909.  
Richards, Dr. T. W., care of Bureau of Medicine and Surgery, Navy Dept., Washington, D. C. 1908.  
Richardson, Charles H., Jr., 232 Third Ave., Highland Park, N. J. 1902.  
Richmond, Dr. Chas. W., U. S. National Museum, Washington, D. C. 1904.  
Riley, J. H., U. S. National Museum, Washington, D. C. 1909.  
Ritter, Prof. W. E., La Jolla, San Diego Co. 1901.  
Roberts, Dr. T. S., 1603 4th Ave., Minneapolis, Minn. 1909.  
Robertson, Howard, 526 Merchants Trust Bldg., Los Angeles. 1896.  
Robertson, John McB., Buena Park, Orange Co. 1913.  
Rockwell, Robert B., 535 Clarkson St., Denver, Colo. 1908.  
Rossignol, Gilbert R., 2116 Bull St., Savannah, Ga. 1909.  
Rowley, John, 42 Plaza Drive, Berkeley. 1909.  
Rust, Henry J., Box 683, Coeur d'Alene, Idaho. 1911.  
Sage, John H., Portland, Conn. 1910.  
Sampson, Walter B., 814 Kohl Bldg., San Francisco. 1894.  
Saunders, Aretas A., Box 65, West Haven, Conn. 1909.  
Saunders, W. E., London, Ontario, Canada. 1910.  
Schneider, J. J., Box 363, Anaheim. 1899.  
Schussler, Geo. W., 1345 Oak St., San Francisco. 1911.  
Sclater, William Lutley, 10 Sloane Court, London, S. W., England. 1909.  
Sharp, Clarence S., Escondido. 1902.  
Sharples, Robert P., West Chester, Pa. 1911.  
Shaw, W. T., 600 Linden Ave., Pullman, Wash. 1911.  
Shelton, Alfred, 2312 Gough St., San Francisco. 1909.  
Sherman, Miss Althea R., R. D. 2, McGregor, Iowa. 1911.  
Shufeldt, Dr. R. W., 3356 18th St., N. W., Washington, D. C. 1911.  
Silliman, O. P., Castroville. 1913.  
Simmons, Finlay, 622 First National Bank, Houston, Texas. 1913.  
Skinner, E. H., 1354 S. Hope St., Los Angeles. 1900.  
Sleeth, Asa, 1025 Michigan Ave., Portland, Oregon. 1913.  
Sloanaker, Jos. L., Box 402, Palisades, Colo. 1910.  
Smith, Allyn G., University Hall, Berkeley. 1909.  
Smith, Austin Paul, Winslow, Arkansas. 1907.  
Smith, Prof. Frank, University of Illinois, Urbana, Ill. 1911.  
Smith, Franklin J., Box 98, Eureka. 1913.  
Smith, Wilfred, 1111 6th St., Santa Monica. 1911.  
Snyder, Gaylord K., Hotel Rey, 3rd St. and Figueroa, Los Angeles. 1910.  
Snyder, Prof. J. O., Box 775, Stanford University. 1900.  
Spaulding, E. S., 1408 Chapala St., Santa Barbara. 1910.  
Spielman, Oscar P., 1440 Warner Ave., Chicago, Ill. 1909.  
Squires, Rev. W. A., 1137 E. Miner Ave., Stockton. 1912.  
Steinbeck, Wm., 1029 N. Hunter St., Stockton. 1897.  
Stevens, G. W., Alva, Oklahoma. 1912.  
Stevens, Dr. J. F., Box 546, Lincoln, Nebraska. 1911.  
Stivers, Dr. C. G., 502 Auditorium Bldg., Los Angeles. 1914.

- Stock, Chester, 492 Seventh St., San Francisco. 1912.
- Stone, D. D., R. D. 3, Oswego, N. Y. 1909.
- Stone, Geo. E., 2545 B, Benvenue Ave., Berkeley. 1912.
- Storer, Tracy I., East Hall, University of California, Berkeley. 1910.
- Stover, Allan J., Corvallis, Oregon. 1914.
- Strong, Wm. A., 41 Grand Ave., San Jose. 1912.
- Stuart, George H., N. W. corner Broad and Chestnut Streets, Philadelphia, Pa. 1913.
- Suksdorf, P. J., Bingen, Wash. 1910.
- Swales, Bradshaw H., Grosse Isle, Mich. 1906.
- Swarth, Harry S., Museum of History, Science, and Art, Exposition Park, Los Angeles. 1897.
- Sweeny, Joseph A., care of Forest Service, Laramie, Wyoming. 1912.
- Swett, Miss Helen, Martinez. 1901.
- Swezy, Miss Olive, 2533 Durant Ave., Berkeley. 1914.
- Sykes, George Francis, 322 Agricultural Hall, Corvallis, Oregon. 1913.
- Tarbell, Miss Olga S., 1 Cabrillo Place, Pasadena. 1906.
- Taverner, P. A., Zoological Division, Geological Survey, Ottawa, Canada. 1909.
- Taylor, E. F., Grass Valley, Nevada Co. 1910.
- Taylor, Loren E., Box 482, Reno, Nevada. 1897.
- Taylor, Walter P., Museum of Vertebrate Zoology, University of California, Berkeley. 1905.
- Telford, Harry, Klamath Falls, Oregon. 1912.
- Terrill, L. McL., St. Lambert, Quebec, Canada. 1911.
- Test, Louis A., Ames, Iowa. 1908.
- Tevis, L. K., Bakersfield. 1912.
- Thayer, John E., Box 98, Lancaster, Mass. 1906.
- Todd, W. E. Clyde, Carnegie Museum, Pittsburgh, Pa. 1909.
- Tracy, H. C., 504 N. Highland Ave., Hollywood. 1910.
- Treganza, A. O., 62 Hooper Bldg., Salt Lake City, Utah. 1907.
- Tremper, Lauren, 136 Dewey St., Philadelphia, Pa. 1911.
- Trenor, Thomas, 1501 Scott St., San Francisco. 1913.
- Trippe, Thomas M., Howardsville, Colo. 1911.
- Trumbull, J. H., Plainville, Conn. 1911.
- Tyler, John G., 1114 Belmont Ave., Fresno. 1905.
- Unglish, W. E., Box 233, Gilroy. 1910.
- Van Fleet, Clark C., Box 468, Santa Rosa. 1906.
- Van Rossem, Adriaan, R. D. 1, Box 74 A, Pasadena. 1909.
- Visher, Prof. Stephen Sargent, Walker Museum, University of Chicago, Chicago, Ill. 1911.
- Walker, Alex, Mulino, Oregon. 1911.
- Walker, Ernest P., care of Alaska Fisheries Service, Wrangell, Alaska. 1910.
- Wall, Edward, Box 554, San Bernardino. 1913.
- Warren, E. R., 20 W. Caramillo St., Colorado Springs, Colo. 1909.
- Waterman, Miss Edith S., 728 Paru St., Alameda. 1906.
- Wear, Miss Winifred N., 253 Coast Ave., Fresno. 1909.
- Weber, H. B., Blackfoot, Idaho. 1910.
- Weed, Benj., Box 24, Berkeley. 1911.
- Welch, L. W., 527 E. 15th St., Long Beach, 1911.
- Wells, Gurni, R. D. 6, Box 73, Santa Rosa. 1911.
- Wetmore, Alex, Biological Survey, U. S. Dept. of Agriculture, Washington, D. C. 1909.
- Wheeler, Mrs. J. W., Box 847, Tucson, Arizona. 1912.
- Wheeler, Roswell S., 296 Park View Terrace, Oakland. 1894.
- Wheelock, Mrs. H. B., 1040 Hinman Ave., Evanston, Ill. 1909.
- Whitcher, Chas. L., Los Olivos. 1911.
- White, Halstead G., Claremont. 1914.
- Widmann, Otto, 5105 Von Versen Ave., St. Louis, Mo. 1904.
- Wilder, H. E., Carlotta, Humboldt Co. 1909.
- Willard, F. C., Tombstone, Arizona. 1905.
- Willett, George, 2123 Court St., Los Angeles. 1905.
- Wilson, Miss Ada, 976 Atchison St., Pasadena. 1914.
- Wood, George, 7403 Hawthorne Ave., Hollywood. 1912.
- Wood, J. Claire, 179 17th St., Detroit, Mich. 1909.
- Wood, Jesse J., 309 W. Micheltoreno St., Santa Barbara. 1912.
- Woodruff, Frank M., Academy of Sciences, Lincoln Park, Chicago, Ill. 1906.
- Wright, Frank S., 14 Cayuga St., Auburn, N. Y. 1910.
- Wright, Howard W., Box 1, Stanford University. 1907.
- Wueste, Rudolph, Morena Dam, San Diego. 1901.
- Wyman, L. E., 1333 S. Burlington Ave., Los Angeles. 1908.
- Wythe, Miss Margaret W., 4247 Terrace St., Oakland. 1912.
- Zahn, Otto J., 2115 Estrella Ave., Los Angeles. 1896.

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# THE CONDOR

A Magazine of Western  
Ornithology



Volume XVI

July-August, 1914

Number 4



COOPER ORNITHOLOGICAL CLUB

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# THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XVI

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## A PLEA FOR COMPARATIVE OOLOGY

By DR. T. W. RICHARDS, U. S. Navy

PROBABLY there is no natural history pursuit which has had more active and enthusiastic devotees than that which involves the collection of birds' eggs and the study of nidification in general, though too often the latter is looked upon as an altogether secondary consideration. The egg collections in this country—and I am sure the same may be said of Europe and Australia—greatly outnumber the collections of skins, and consequently there are many collectors who are thoroughly familiar with the intricate variations in a large number of birds' eggs and yet are quite uninformed regarding the main anatomical or external characteristics of the birds themselves, excepting, perhaps, the commoner species of their own immediate localities. This has given rise to no little adverse criticism, sometimes thinly veiled, on the part of other investigators, and little as we may relish these admonitions it may as well be admitted frankly that there is much justice in this attitude. Over-specialization in any subject, is bad, and I think that oologists should recognize this principle: he who takes a comprehensive interest in ornithology, and indeed, general zoology, and informs himself accordingly, will be not only much better equipped to pursue his own specialty, but will derive far more profit and enjoyment therefrom. Oology has its appropriate setting in the natural order of things and we cannot afford to ignore this environment.

In conceding so much, however, it may be well to point out that there are certain issues, which, while easily leading to endless contention, are barren of useful results. Thus, the systematist who occupies himself so industriously in the—to him—paramount business of making "sub-species" has little sympathy for the individual who is content to "brood over birds' eggs," as Professor Newton puts it; while on the other hand, the oologist and field collector cannot be expected to wax enthusiastic over what, in his eyes, appears to be simply a fruitless attempt to form academic "characters" out of imperceptible



differences having no objective reality. Whether the work of the systematist or that of the oologist is the more important is not material, after all; their results should be mutually helpful and supplementary and the real value of either must depend upon the ability of the individual and his capacity for accurately ascertaining and interpreting *facts*.

It has been said of oology that "hardly any branch of the practical study of natural history brings the enquirer so closely in contact with many of its secrets," and probably it is this feature which gives it so wide an appeal. Probably a large majority of oologists find the most fascinating aspect of their pursuit in investigations afield. For many students of nature, and their number is steadily increasing, this is enough, and it behooves us, as collectors, to enquire why we are not content with this phase only; in other words, what is the real purpose behind our laborious collection, preparation and arrangement of the specimens themselves? Doubtless there are various reasons: with certain individuals, happily few in number, let us hope, the formation of an egg collection is, at best, merely a pastime, or perhaps one manifestation of a very general human weakness, namely, acquisitiveness, the desire to obtain simply for the gratification of possessing and, particularly, possessing "more than the other fellow." To others an egg collection may make an esthetic appeal, through the beauty and infinite variety of the specimens, rather than their intrinsic interest. While most of us might confess to a certain sympathetic understanding of this latter point of view it will hardly be contended that the end justifies the means: as has often been pointed out, beads or marbles would do as well.

As a matter of fact, it will be found that nearly all private collections in this country are what might be termed "faunal" collections, the primary object of the collector being, apparently, to obtain the eggs of all birds breeding or otherwise occurring within a certain region, say the United States or some section thereof or, more commonly, North America as a whole. Properly conducted this is doubtless a legitimate aim, but it seems to me that it falls so far short of the real story our cabinets should relate that it ought to be an altogether secondary consideration. From this point of view it is difficult to see how a collection of eggs representing, say, every species of summer resident within the District of Columbia, advances our sum of knowledge one whit beyond an accurate record of the same eggs actually observed *in situ*. It is true that a local collection, of any kind, possesses a certain educational value, for a visual demonstration that such and such birds breed within the District makes a more lasting impression than a mere statement to that effect; but such collections are more appropriate for local schools, museums or other similar institutions.

Is there, then, nothing to justify the oft-repeated claim that oology should be accorded the dignity of a scientific pursuit and that careful study of a collection of eggs may, in itself, afford information obtainable in no other way? Surely there is, provided, however, that the collection is built up on logical principles. Science has been defined as "knowledge gained and verified by exact observation and correct thinking, especially as methodically formulated and arranged in a rational system." Let us note that this does not specify the kind or the quantity of knowledge required, but only how we should obtain and utilize it. Now it is obvious that *some* information may be obtained from a systematic collection of *any* particular class of objects, whether eggs, skins

or teapots; also, that such information should be as complete and accurate as possible. With the information or "knowledge" so available the intelligent collector will proceed to *methodically formulate and arrange it in a rational system*, and when he has done so he is perfectly justified in claiming scientific results, so far as they go. The point too often overlooked is that isolated observations are of little value: they must be correlated.

If we attempt to apply some process of investigation to a "faunal" collection the weakness of the latter becomes at once apparent. To make this clearer let us consider a complete but restricted one like that from the District of Columbia. We will find that it contains two species of falcons' eggs, *F. sparverius* and *F. p. anatum*. The eggs of the Duck Hawk are much larger and darker than those of the Sparrow Hawk, but there is a certain likeness in the type of markings; is this a general characteristic of all falcon's eggs or a peculiarity shared by a few? We must go farther afield to answer this query. I find in my cabinets the eggs of more than a score of falcons: *F. mexicanus* and *phalacrocorax* from California, *fusco-coerulescens* from Texas, *columbarius* from Assinaboia, *paulus* from Florida, *subbutco*, *anatum*, *tinnunculus* and *acesalon* from the British Isles, *vespertinus* from Hungary, *eleonorae* from Greece, *sacer* from Russia, *cenchrus* from Asia Minor, *obscurus* from Siberia, and so on through *japonicus* to the distant shores of the Pacific. In latitude there is likewise a wide distribution as shown by *rusticolus* and *gyrfalco* from Lapland and Iceland, *cenchroides*, *unicolor* and others from Australia, and finally, *rupicola* and *rupicoloides* from South Africa. The genus is practically cosmopolitan, the various species nest in almost every possible situation (except under ground), a series of eggs presents a wonderful diversity in color and marking, yet all are distinctly true to one type: each one could be picked out as a falcon's egg and, so far as I am aware, could be mistaken for none other. (Eggs of the Honey Buzzards, *Pernis*, and certain Polyborine species—for example *Milvago chimango*—seem to approach them most closely.)

I think it will be evident that such information is both interesting and desirable, but for its demonstration a collection must be formed along rather definite lines, based on the natural relations of birds rather than on their geographical distribution. Such a "group" collection need not, of course, be universal in scope, but should embrace as many genera, families or orders as the collector's means and opportunities permit, the main point being to make it as complete and accurate as practicable within its natural limitations. Of course a general collection of this sort presents many difficulties and, for most of us, would entail prohibitive expense. Hence, I would by no means advise every collector to lightly go in for exotic material of all sorts—and I speak from many years' experience—nor is this essential. A faunal collection may be amplified in special directions, and this is being done already to some extent. Thus the *Mniotiltidae* have long been favorites with American collectors. In Europe this is more common, and I know one collector who has a marvellous array of eggs of the *Tubinares* and *Lariformes*, and another who specializes in the *Fringillidae* while endeavoring to complete a faunal collection of the British Isles.

But the faunal idea seems to be an obsession with many collectors, and they carry it to the absurd degree of separating entirely their American and "foreign" material. It would be quite as logical to arrange our Bald Eagles' eggs so that those of the Alaskan form are placed in the top drawer, along with

the ducks and auklets, while specimens from Florida would be located at the bottom, congenially surrounded by spoonbills and limpkins! To my way of thinking the oologist who, with a given amount of time (and money) starts out to illustrate all that is ascertainable about the nidification of, say, our North American *Icteridae*, can accomplish far more in the way of scientific results than by attempting to accumulate a "set" of every known form on the A. O. U. List.

While the number of problems open to investigation, by the intensive study of a group collection is almost endless, the inviting road towards broad generalizations is far less easy than it seems; for on every hand there is abundant opportunity for false and hasty conclusions which will inevitably carry us far afield. Hence, the systematists are prone to complain that we can afford them little assistance in their labors, as likeness or dissimilarity in birds' eggs cannot generally be relied upon to indicate a corresponding degree of relationship among the birds themselves. Let us cheerfully admit it, proceed to show where the correspondence begins and ceases and then, if possible, ascertain *why*. But in many cases the correspondence is really very close; such examples as those of the owls, tinamous and shore-birds will occur to all, and it is said that the relationship of this last group to the gulls and terns was first pointed out by oologists. Even small groups are sometimes sharply defined, such as the peculiar markings characteristic, I believe, of the genus *Myiarchus*.

On the other hand, the many exceptions, while difficult and confusing, are no less interesting and would doubtless prove equally informing if we held the explanatory key. Thus, eggs of the herons are greenish, while those of the slightly differentiated bitterns may be nearly white or decidedly brown, but are still unspotted. Among their allies, the ibises and spoonbills, however, variation runs riot and we find plain white (e. g., *Ibis molucca*), light greens, dark greens and spotted types in great diversity. Such examples become particularly puzzling when we observe that certain species, even more closely allied, occupying the same restricted habitat, and having identical methods of nidification, may yet produce eggs extremely unlike; as an American example compare the whitish, spotted eggs of *Toxostoma bendirei* with the plain, greenish specimens of its neighbor, *T. crissalis*.

It is particularly in the investigation of such facts that the group collection, of restricted scope, should be of value. Suggestive facts may be forthcoming; thus, if we consider the eggs of the *Mimidae* as a whole we find that while nearly all are commonly spotted, those that are plain (e. g., *T. crissalis*, *G. carolinensis*) seem to always adhere to that type, while in the other forms there is an occasional tendency to lightly marked or unmarked examples. Let us contrast this with an illustration from the genus *Accipiter*; eggs of *fuscus* and *nisus* are, typically, richly marked, those of *cooperi* are commonly plain, while specimens of *cirrhocephalus* (Australian) in my collection are intermediate. But I have one set of *cooperi* (taken by Bingaman) which shows about as much superficial coloring as average specimens of *B. borealis*, while eggs with a few faint spots are not uncommon. Apparently in the genus *Accipiter* either the habit of laying plain eggs has not yet become fixed in any species, as it has with some *Mimidae*, or, more probably, I think, the habit of laying colored eggs has been newly acquired and is not yet universal. We cannot say positively, yet it does seem as if in certain groups we could trace indications of a progressive increase or decrease in egg-pigmentation, which is actually in pro-

cess of development. Though the process is far too slow for direct observation it is probably exceedingly rapid in comparison with most evolutionary changes. Usually, we may assume, such a change would be gradual, but it might in some cases be sudden and discontinuous. This latter condition would seem to be likely when the eggs of some particular species stand forth conspicuously as wholly different from those of all nearly related forms (e. g., *Cistothorus stellaris*).

Great similarity between the eggs of birds distantly related is far less common than dissimilarity among forms that are closely allied. Birds as unlike as parrots and petrels may lay eggs which appear indistinguishable, but this is due to lack of color in each case. In fact, unless eggs are white or, at most, plain colored, family distinctions usually prevail, and this holds generally even in the *Oscines* where natural lines are faintly drawn. Of course this does not imply that the eggs of each family necessarily show any great similarity but rather that eggs selected from different families are usually sufficiently unlike to prevent confusion. Nevertheless, of the fifty (more or less) oscine families the two which, I presume, are the most clearly delimited are the *Alaudidae* and *Hirundinidae* and it happens that in each of these groups the eggs, as a whole, are very closely allied. Larks' eggs, while difficult to describe, conform to a type which is quite distinguishable, while all swallows' eggs seem to be white, some more or less flecked with brown. Further investigation of the various swallows' eggs illustrates one principle in oology which is fairly constant, namely, that eggs hidden in holes are apt to be white, or nearly so; *R. riparia*, *I. bicolor*, *T. thalassina* and *S. scrippensis* are all hole-breeders. It is generally assumed that coloration is primarily a protective feature, and that it is lost, as useless, where eggs are completely hidden from view. Unfortunately there are also plenty of white eggs laid in *open* places: the eggs of both *Asio accipitrinus* and *S. cucularia* are white just because they are *owls'* eggs, in all probability, irrespective of the fact that one bird exposes its eggs *on* the ground while the other burrows *beneath* it. At all events, the production and deposition of egg coloring matter must correspond to certain definite physiological, chemical and, perhaps, anatomical characteristics in one or both parents, and the fact that these causes may be apparently slight and inconsequential should not discourage our attempts to ascertain them; it is far easier to say they are "accidental", but more logical to assume that they follow some law if we can but find it. On the other hand, many efforts have been made to explain such coloration by the application of general principles affecting organic evolution as a whole, but the results of such broad speculations can hardly be expected to answer such minute requirements. In any event they are beyond the purview of this paper, but to the oologist who is sufficiently interested I would commend a perusal of Dixon's chapter on "Nidification" in Seebohm's delightful "British Birds".

So much for this line of study, which the "comparative oologist" may amplify indefinitely. But other investigations lie invitingly at hand. Consider how little we know of the many unusual types of coloration which occasionally occur, departures from the mean which are sufficiently marked to be noteworthy and yet which do not fall within the category of "abnormalities", the latter offering a special field of its own which Jacobs at one time cultivated most successfully. In Europe collectors are particularly keen in the pursuit of "varieties", as these rarer types are called, and specimens have

fancy values accordingly. For instance, out of several hundred osprey eggs which have passed through my hands I have two sets in which the markings are all purple, and I recently received a set of Swamp Sparrow's eggs which the collector aptly termed "Poocetes-like". Many (possibly all) species of *Corvus* occasionally lay eggs in which the customary green is replaced by red, though such instances are exceedingly rare. In just one species, as far as I am aware, this is the normal type and I have several sets of *Corvus capensis* from South Africa which closely resemble these peculiar eggs of our raven.

We have all run across nests which obviously contained eggs produced by more than one female; how often and among what species are such instances likely to occur? I do not think there is much data available, but special attention to this point would doubtless bring forth much hidden information. Many years ago I became sufficiently interested in this subject to record a few cases and, quite incidentally, coin a new word—co-nidification—which barely escaped immortalization in the Century Dictionary!\*

As I have already stated, the extension of a collection beyond the safe limits of the A. O. U. List is a difficult, expensive and altogether serious undertaking. It requires infinite time and patience to build up an exchange list, and for some entire regions this is quite impracticable. In Europe, the customs differ markedly from ours, data consists customarily of date and locality only and as dealers handle a very large percentage of the eggs it is a heartbreaking business to obtain really desirable material from the *original* sources. In South Africa and South America collectors are few and far between and oology has received scant attention in most localities. Australians, on the contrary, have every reason to be proud of their work along these lines. There are many active field oologists whose specimens and data compare favorably with our very best, and my personal acquaintance and extensive correspondence with them has been a real pleasure in every way. Of Indian oologists I know little and my collection is as yet practically barren in this rich field despite strenuous efforts at cultivation for several years. But in spite of the drawbacks, I must confess that the collector who once takes the plunge and becomes awake to the possibilities of exotic material is not likely to give up for lack of interest.

Thus, it is particularly fascinating if one is looking at oology from the comparative point of view, to fill the gaps which occur in most of our native groups. There are few families or even genera which are strictly North American and it is surprising to find what of the novel types fit in among our own familiar species. The following examples, which might be extended indefinitely, may serve to illustrate this point. The plain, light blue eggs of our own bluebirds (*Sialia*) form an interesting series, but the real home of their allies, the chats (*Saxicolinae*), is in the Palearctic region and eggs of the many species found there present an endless variety, most of the specimens being more or less spotted. Again, in looking over our cabinets we may observe between the true thrushes and the wheatears one or more sets of small, dark eggs which seem strangely isolated and out of place; for North America we have only one representative (*Cyanocula*) of the large and interesting sub-family (*Ruticillinae*) which includes not only the nightingales but also the real robins and redstarts after which our birds were long ago misnamed. Many of these eggs are particularly beautiful and among the various species there is great diver-

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\*The late Professor Coues was then at work on the zoological section; having heard of the word he asked for the original reference—the old O. & O., I think—but I inadvertently neglected to inform him.

sity, from delicate pinks and blues to dark olive-browns. Among the *Turdinae* we find that eggs of the twenty or more North American forms all have as ground color some shade of green or blue, but this is not common to all the true thrushes; in *T. viscivorus* it varies greatly from gray or greenish gray to reddish-brown; eggs of *M. olivacea* from South Africa are similar while in one species only (*Oreocichla mollissima*) it is white.

Doubtless most of the facts and speculations set forth above are familiar to readers of THE CONDOR and, having little claim to originality, my only excuse in presenting them is an earnest belief that the time has come in this country when the study of egg collections as a whole should receive more attention and, particularly, that our collections should be so built up and expanded as to guarantee the most fruitful results.

U. S. S. Washington, Puerto Plata, Santo Domingo, May 20, 1914.

## PECULIAR DEATH OF CALIFORNIA BUSH-TIT

By G. WILLETT

WITH ONE PHOTO BY ANTONIN JAY

ON March 28, 1914, accompanied by Mr. Edward Ricketts of the California Fish and Game Commission, I was walking through a grove of scrub oak trees near Live Oak, Sutter County, California, when, about eight



Fig. 49. NEST OF THE CALIFORNIA BUSH-TIT; REMAINS OF ONE OF THE BUILDERS APPEARS AT LEFT OF ENTRANCE, WHERE IT HAD PROBABLY BECOME ENTANGLED IN THE WOOL CHIEFLY COMPOSING THE NEST.

feet up in a young live-oak near the bank of a small stream, I noticed a nest of the California Bush-Tit (*Psaltriparus minimus californicus*). I was at once struck by the fact that the nest was an unusually handsome one even for this bird, which is well known for the artistic construction of its home. On approaching closer I saw that the nest, which was compactly and uniformly built, was well coated on the outside with white wool, probably gathered from nearby bushes where sheep had been grazing.

This beautiful and, to the writer, unusual covering of the nest was quite sufficient to invite still closer examination, and the most unusual feature was yet to be discovered. On drawing down the supporting branches to facilitate closer inspection, I was surprised to observe the tail and wing-tips of a bush-tit projecting from the side of the nest a couple of inches to the left of the entrance. Upon investigation I found that one of the little nest builders, for some reason which seems difficult to explain, had apparently attempted to tunnel through the side of the nest and, becoming entangled in the net-like structure to such extent that it could not free itself, had perished. The bird was thoroughly dried when found, so the nest was brought in and photographed (see fig. 49). The tail and wings of the dead bird will be seen projecting from the nest a little to the left of the entrance.

The nest contained five eggs, three of which were broken. They had apparently been deposited at least two weeks previously, which would indicate a rather early nesting date for the species.

*Los Angeles, California, May 6, 1914.*

## ON THE OOLOGY OF THE NORTH AMERICAN PYGOPODES

By DR. R. W. SHUFELDT

WITH FIVE PHOTOS BY THE AUTHOR

TAKEN collectively, the loons and grebes form a natural Supersuborder of birds, created to contain the Suborder *Pygopodes*, which latter is represented by two families, namely the *Colymbidae* or Grebes, and the *Gaviidae* or Loons.

In my paper on "An Arrangement of the Families and Higher Groups of Birds," which appeared some time ago in *The American Naturalist* (vol. xxxviii, nos. 455-456, Nov.-Dec., 1904), the loon family bore the name of *Urinatoridae*, which, be it known, is co-equal with the family here called *Gaviidae*; while the grebes, formerly called the *Podicipidae*, are, as an assemblage, now known as the *Colymbidae*. This constant changing of names, though doubtless necessary, is very inconvenient and confusing for the ornithologists of the present day; and every one will surely rejoice when avian nomenclature eventually becomes fixed.

For years the common loon was known as *Colymbus torquatus*; and now *Colymbus*, in modern American ornithological works, is only applied to the grebes, while the loons are all relegated to the genus *Gavia*. Why the last-named, as a family (*Gaviidae*), should, in a Suborder (*Cepphi*), be arrayed with the auks (*Alcidae*), as is the case in the classification adopted in the last edition of "The A. O. U. Check-List of North American Birds," is, to me, quite incomprehensible. Morphologically, a grebe and a loon are very much alike; while a loon is, structurally, quite a different bird from any species of auk known to me.

In the present article I am to present some notes I have made and illustrated with photographs of the eggs of our grebes and loons, much as was done in another contribution of mine, which appeared in a former issue of THE CONDOR<sup>1</sup>, devoted to the eggs of the North American limicoline birds.

1. SHUFELDT, R. W. An Introduction to the Study of the Eggs of the North American Limicolae. THE CONDOR, vol. xv, no. 4, July-August, 1913, pp. 138-151; illustrated by 54 reproductions of photos of eggs of the shore-birds.

For the material used in the present connection I am again indebted to Mr. E. J. Court of Washington, D. C., from whose fine collection of eggs most of it has been selected, and also to the United States National Museum for the loan of three exceptionally beautiful eggs of our Common Loon (*Gavia immer*), here figured in nos. 11-13. All the photographs of the eggs illustrating the present article are reproductions of those made by myself, direct from the specimens shown, and all are natural size on my negatives.

It will not be necessary to list here the grebes and loons known to occur in our avifauna, for they are familiar to ornithologists everywhere. The eggs of all of them have been examined and compared by me during the preparation of the present paper, with the exception of the eggs of the Yellow-billed Loon (*Gavia adamsi*), no specimens of the eggs of which are to be found in either of the above referred to collections; I shall refer to this matter again farther on in this article.

Throughout the early literature of the grebes in this country, there exists no little confusion in regard to the American species, a statement that may, in most instances, be extended to include the descriptions of their nests and eggs. They are better known now, and the first form here to be noticed is the Western Grebe, the *Podiceps occidentalis* of Lawrence and the *Æchmophorus occidentalis* of the A. O. U. Check-List. It has a wide range through western North America, occurring as far south as central Mexico.

No descriptions of grebes are found in Wilson's "American Ornithology", though five species of them are listed at the end of the "Brewer's Edition" of that work.

Audubon's accounts of our grebes are scanty and of but little value. The most elaborate one is devoted to the Crested Grebe ("*Podiceps cristatus*"), a bird not found in North America, but which he claims to have met with in numbers over the greater part of the United States in his time. Ridgway says of this bird in his *Manual*: "Nearly cosmopolitan, but no authentic record for any portion of America" (p. 5).

To return to *Æ. occidentalis*, the last-mentioned writer does not describe its eggs in the work named, simply stating: "Eggs 2-5, 2.40 x 1.54." Not a word as to their form or color.

With respect to this, Coues gives a general description of the eggs of the North American grebes, intended to cover those of all our species, thus: "The eggs are more numerous than in other pygopodous birds, frequently numbering 6-8; elliptical, of a pale or whitish unvariegated color, and commonly covered with chalky substance."<sup>2</sup> He says, in the case of *Æ. occidentalis*, that they are "usually 3-5 in number, measuring 2.40x1.55."

Of this species Reed says: "They lay from three to five eggs, the ground color of which is a pale blue; this color is, however, always concealed by a thin chalky deposit, and this latter is frequently stained to a dirty white. Size 2.40 by 1.55."<sup>3</sup>

Of the seven or eight eggs of the Western Grebe before me, I find the average measurement to be almost exactly 2.40x1.55, though this varies some-

2. COUES, E. Key to North American Birds, vol. II, fifth edition, p. 1053. He gives a separate description for the eggs of *Colymbus auritus*, and states that those of *C. n. californicus* cannot be distinguished from them (p. 1058).

3. REED, CHESTER A. North American Birds Eggs. New York, 1904, p. 1. A good figure of the egg of *Æchmophorus* is given; and, as a matter of fact, this excellent book is beautifully illustrated all the way through with reproductions of photographs of the vast majority of the eggs of United States birds and many of their nests, etc.

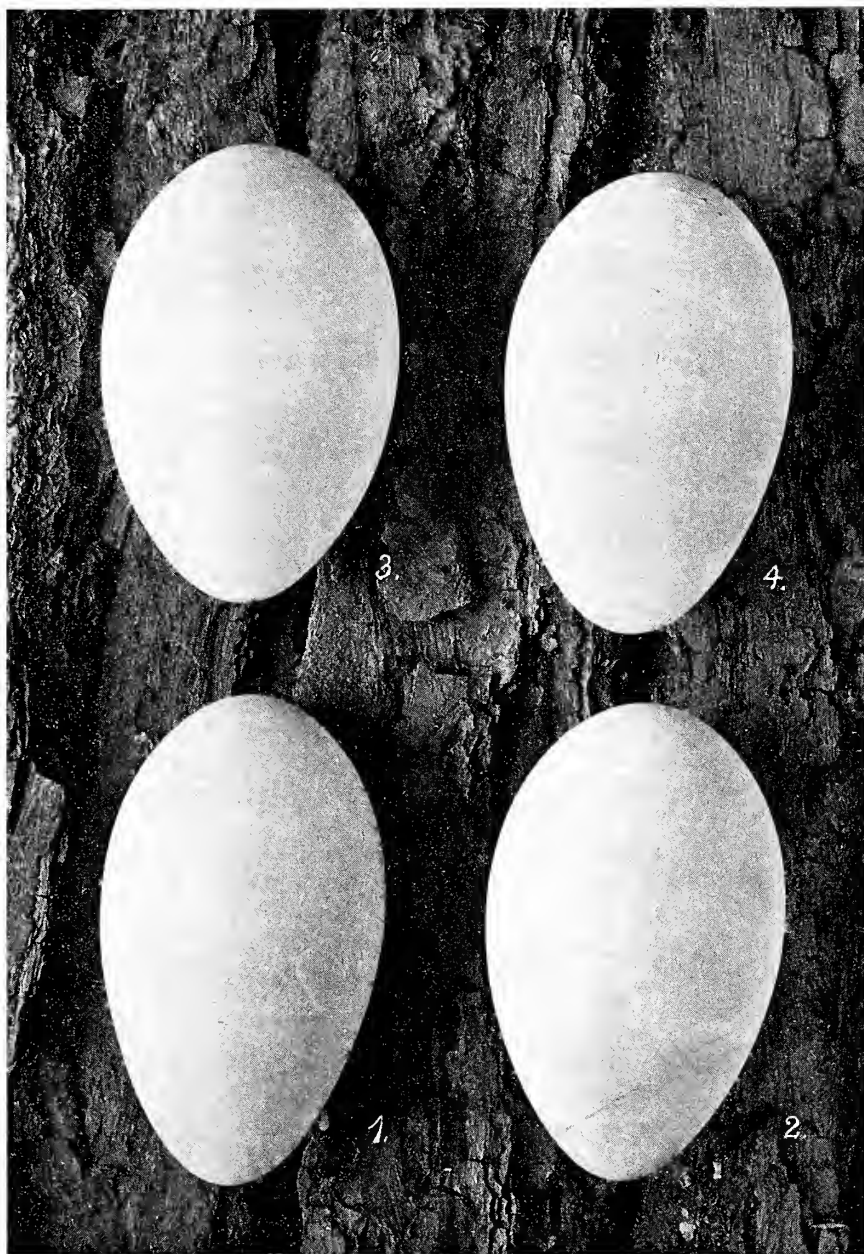


Fig. 50. NOS. 1 AND 2, EGGS OF THE WESTERN GREBE (*Aechmophorus occidentalis*); NOS. 3 AND 4, EGGS OF THE HOLBOELL GREBE (*Colymbus holboelli*); ALL NATURAL SIZE.

what for individual eggs, as does also the form in different specimens. As to the white, chalky deposit, it by no means always obscures the pale blue ground color of the egg, for in some the layer is extremely thin, while in others it may have been more generously applied or deposited on the surface, sometimes even in heavy circumscribed blotches (see no. 2).

Two eggs of this grebe are given in figure 50 with this article (nos. 1 and 2); they are from the Court collection, and were taken by A. O. Treganza at Utah Lake, Utah, on the 29th of May, 1904 (set mark 29-4). Mr. Treganza, who resides at Salt Lake City, describes the nest as being a "platform of reeds, partly floating, partly resting on broken-down reeds; nest proper composed of decayed reeds. Water three to six feet deep."

The colony of grebes, where these eggs were collected, was located about two miles from the shore, and contained about one hundred nests. Some of the clutches were in advanced incubation. Eggs from the other nests are before me, but their characters are the same as those already given for the specimens shown in the figures.

Passing to *Colymbus holboelli*, a grebe of which I have several eggs at hand belonging to the Court collection, it is to be noted that they very closely resemble those of the Western Grebe just described (fig. 50, nos. 3 and 4). They are, however, somewhat smaller, a fact noted by Ridgway in his *Manual* ("Eggs 2-5, 2.23x1.37," p. 5.)

Coues on the other hand says, in the last edition of his "Key": "Eggs 2-5, sometimes more, oftener 3 or 4, 2.10-2.35x1.51-1.45, rough, whitish, either inclining to pale greenish or with buffy discoloration, of the narrow-elongate shape usual in this family" (p. 1056). That they are not always of the "elongate shape," will be appreciated by comparing nos. 1 and 3 of this paper. The "buffy discoloration" is to be attributed to stains due to coming in contact with the decaying vegetation composing the nest. Mr. William B. Arnold collected the eggs of the Holboell Grebe shown in nos. 3 and 4 of fig. 50 (Manitoba, Canada, June 15, 1910).

Reed, in his above cited book, says of the eggs of the Holboell grebe: "They lay from three to six eggs of a dingy white color which have the stained surface common to Grebes' eggs, size 2.35x1.25." Those shown in nos. 3 and 4 of the present article are somewhat larger than this, though very slightly so. There is considerable chalky deposit on no. 4, while no. 3 has hardly any, and is of a very pale greenish shade.

I have not illustrated the egg of the Horned Grebe (*Colymbus auritus*), but a specimen of it is shown in Reed's "North American Birds' Eggs" (p. 2), and he says in regard to this species: "They build a typical Grebe's nest, a floating mass of decayed matter which stains the naturally white eggs to a dirty brown. The number of eggs varies from three to seven. Size 1.70x1.15."

To represent *Colymbus nigricollis*, I have selected eggs of the Eared Grebe (*C. n. californicus*), and two of these are shown in fig. 51, nos. 7 and 8. They are typical for this species, and I have several of them at hand from Mr. Court's collection. Mr. A. M. Ingersoll took them at Lake San Jacinto, Riverside County, California, on the 8th of June, 1897. At the time they were collected there were many nests there with eggs of this bird in sight. The floating nests were attached to growing grass in about fifteen inches of water (set mark 2021, no. 4).

Coues says of the eggs of this grebe that they are "not distinguishable from those of *C. auritus*" (p. 1058); while Reed (*loc.*

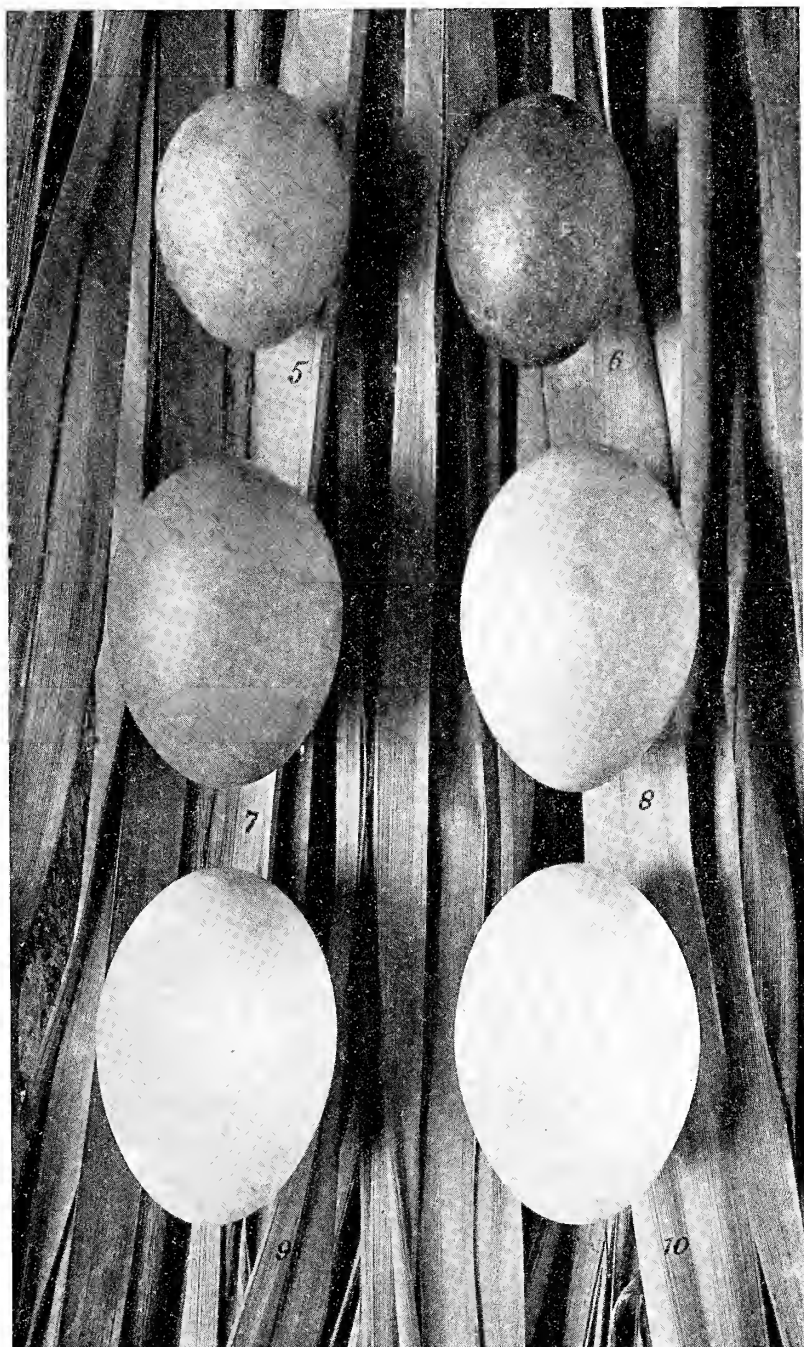


Fig. 51. NOS. 5 AND 6, EGGS OF MEXICAN GREBE (*Colymbus d. brachypterus*); NOS. 7 AND 8, EARED GREBE (*C. n. californicus*); NOS. 9 AND 10, PIED-BILLED GREBE (*Podilymbus podiceps*); ALL, NATURAL SIZE.

*cit.*) says that the eggs of *C. n. californicus* are "bluish white, with the usual chalky and discolored appearance," and he gives the size as 1.75x1.20. Ridgway does not describe them, simply stating "Eggs 4-8, 1.75x1.10."

Audubon had but confused ideas about our smaller grebes and their eggs, so it is quite useless to cite him as an authority on these interesting birds.

Nos. 7 and 8 here figured are of a pale clay color, no. 7 being three or four shades darker than no. 8. Possibly they may be stained in the usual way; but they do not appear to have any chalky deposit upon them, and they vary somewhat in shape. No. 7 measures 1.61x1.24, and no. 8 1.75x1.19, while other eggs of this subspecies at hand average somewhat smaller in size.

Eggs of the Mexican Grebe (*Colymbus dominicus brachypterus*), here shown in fig. 51, nos. 5 and 6, are often of an earth brown color and blotched; others are lighter, but still exhibit the same blotched or marbled appearance on a light clay ground. As usual, they vary in form and size. No. 5 measures 1.40x1.00. Reed gives the average size as 1.40x.95, and there is a specimen in Court's collection which is exactly of that size.

Frank B. Armstrong of Brownsville, Texas, collected nos. 5 and 6, and others also at hand (May 26, 1906). It was near his home, and a large colony of the birds were associated together. Their nests were composed of decayed grass and weeds. The eggs described by Reed (*loc. cit.*, p. 3) were taken by the same inveterate collector on the same date as above, and Reed gives the color as "deep buff or rich brown," which is correct. Clutch 3-5.

Coues did not describe the eggs of this subspecies; but of the extralimital grebe, *Colymbus dominicus*, he says: "eggs usually 7, 1.35x0.95," without giving either their color or form (*loc. cit.*, p. 1058).

Our Pied-billed Grebe or Dabchick (*Podilymbus podiceps*), the eggs of which are here shown in fig. 51, nos. 9 and 10, breeds in various regions throughout North and South America, being very rare in some localities; its eggs have been very differently described by various writers on ornithology.

Audubon apparently never discovered but one nest of this bird—or what he supposed to be this bird—and it contained five eggs. He describes them as measuring "an inch and a quarter, by seven and a half-eighths," and they were "smooth, rather rounded, and of a light greenish-white colour." With respect to the color, he was about right; but I have never seen a "rather rounded" grebe's egg, and his measurements are certainly away off.

Coues says not a word about their color or form, stating simply: "Eggs 4-6 or more, 1.70x0.95" (*loc. cit.*, p. 1059).

Reed gives their color as "deep buff"; the clutch 5-9, and the size as 1.70x1.18 (*loc. cit.*, p. 5). There are four of these eggs before me, taken from a set of five (set mark 9-5). They were collected by Dan Spencer in Iowa ("Town Cr. Bluff") on the 13th day of June, 1895. "Nest of mud and rushes floating in water." (See fig. 51, nos. 9 and 10.) I find these eggs to be of a pale greenish-white, with little or no chalky deposit upon them whatever. As usual, they vary somewhat in form and size, measuring upon the average 1.70x1.19, individual specimens being either a little larger or somewhat smaller than this, and some being rather more elongate than others.

There can be no question in regard to the morphological similarity between the loons of the genus *Gavia* and the grebes; and, structurally, a loon is much nearer *Colymbus* than it is to any auk (*Alca*, etc.). With respect to the eggs laid by the representatives of the genus *Gavia*, however, they are all very

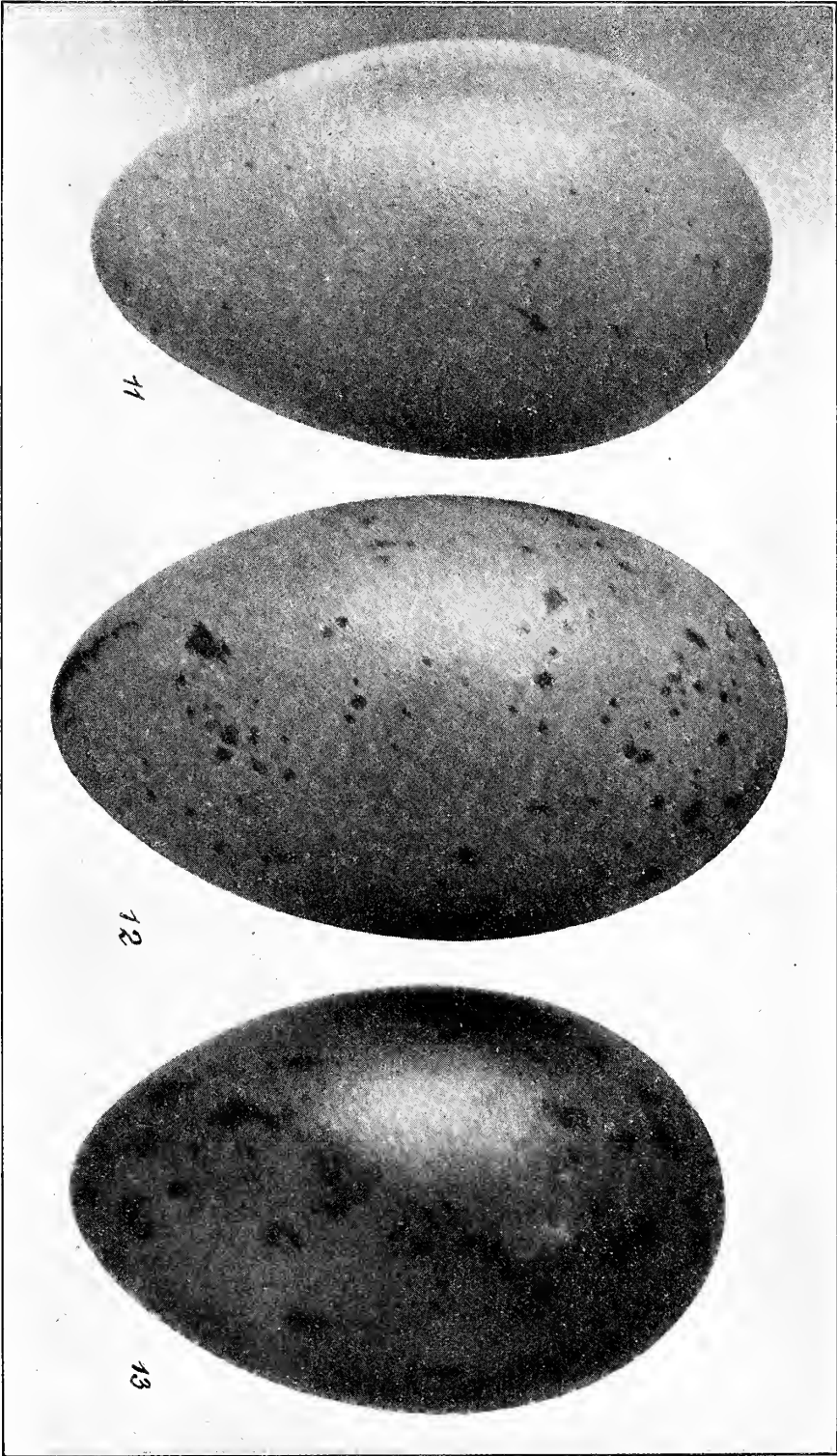


FIG. 52. EGGS OF THE COMMON LOON (*Gavia immer*), COLL. U. S. NATIONAL MUSEUM; ALL NATURAL SIZE.

different from any of those laid by the grebes, in so far as I have studied them.

Loon's eggs never show any chalky deposit upon them, the shells being more or less glossy and rather thick. In color, they range all the way from a clear drab to a deep vandyke-brown. They may be finely speckled all over with a black-brown, never thickly, or, what is more commonly the case, the spots are large and irregular, in some specimens amounting to heavy blotches. They are extremely difficult objects to photograph, owing to the glossy shells and the markings and ground color both being shades of brown, thus rendering it difficult to bring out the spots. The series of figures of loons' eggs in Reed's book, cited above, are excellent exemplifications of the difficulties in question. Some of the markings in those figures, as fine as they are in some respects, have evidently been touched up with a brush prior to reproduction from the photographs.

In figure 52 (nos. 11, 12 and 13) I present three illustrations of Common Loon's eggs (*Gavia immer*), kindly selected for me from the elegant collection of the U. S. National Museum by Dr. Charles W. Richmond of the Division of Birds of that Institution. They were photographed by me, natural size, and they well represent the extreme of ground color and markings as well as range.

No. 11 was taken in the Adirondaek region, New York, and the collector is not known to me (coll. U. S. National Museum, no. 28300). This is the most remarkable loon's egg I have ever seen; it is of a rich olive-drab color, very sparsely flecked with very fine brown specks; it measures 3.51x2.25.

The beautiful specimen shown in no. 12 is considerably larger (coll. U. S. National Museum, no. 17977), as it measures 3.80x2.31; it is elegantly spotted with scattered spots of different sizes of a uniform blackish-brown as shown in no. 12. This egg was collected by George A. Boardman at St. Stevens, New Brunswick; it is a very different looking egg from the one shown in no. 13 of the same figure, which not only is of a much deeper brown, but the blackish-brown markings are, in many instances, much larger, while the egg itself is much smaller, being but 3.48x2.23 (coll. U. S. Nat. Mus., no. 24038, nat. size). This specimen was collected near New Cumberland House, Canada, by Mr. R. McFarlane.

In the coloring of these eggs of *G. immer*, there is a subtle shade of olive present, and this will account for Reed saying that the ground color of Loon's eggs is of a "dark greenish brown" (*loc. cit.*, p. 7). This writer gives, in the book cited, fine, natural-size illustrations of the eggs of *G. immer*, *G. adamsi*, *G. arctica*, *G. pacifica* and *G. stellata*, in fact, all of the species occurring in the avifauna of this country.

I have, in the present paper, figured only those of the Black-throated Loon (*G. arctica*), and the Red-throated species (*G. stellata*), for the reason that, in as much as all the eggs of the different species of our loons so closely resemble each other, I thought it more important to invite attention to variations in form, color and markings in the eggs of one or two species selected from series. This has been successfully accomplished in figures 53 and 54 (nos. 14-19), where the examples shown are all of natural size.

Almost without exception, the loon lays two eggs to the clutch and the markings in the case of *Gavia immer* are never, in so far as I have examined them, most numerous at the larger end. Audubon, in his account of the "Great Northern Diver" (Common Loon), says: "Of the many nests which I have examined, I have found more containing three than two eggs, and I am confi-

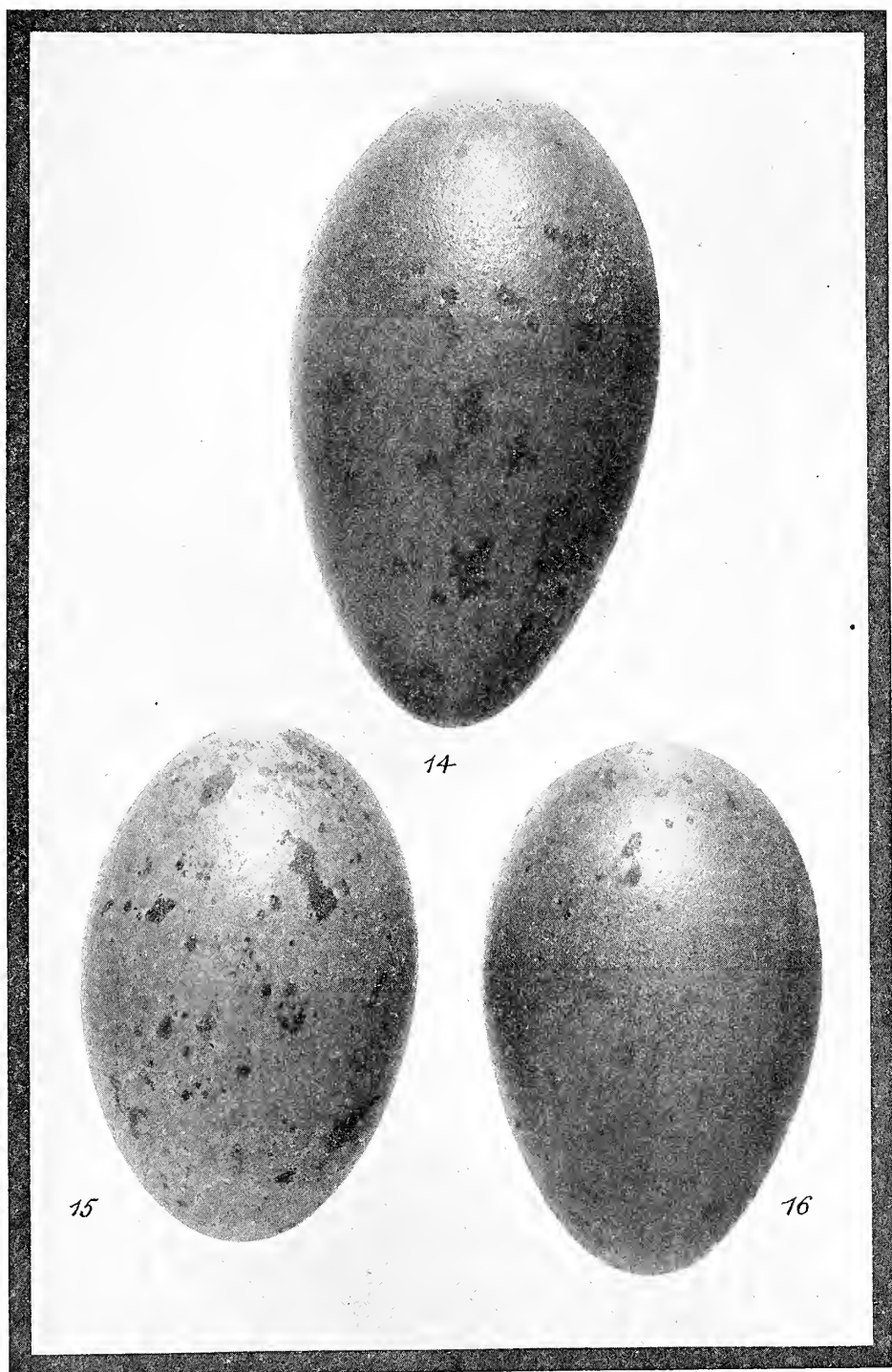


Fig. 53. NO. 14, EGG OF THE BLACK-THROATED LOON (*Gavia arctica*); NOS. 15 AND 16, THE RED-THROATED LOON (*Gavia stellata*); ALL, NATURAL SIZE.

dent that the former number is that which more frequently occurs, although many European, and some American writers, who probably never saw the nest of this bird, allege the contrary. The eggs average three inches and three-quarters in length, by two inches and a quarter in their greatest breadth, and thus are considerably elongated, being particularly narrowed from the bulge to the smaller end, which is rather pointed. They are of a dull greenish-ochry tint, rather indistinctly marked with spots of dark umber, which are more numerous toward the larger extremity" (vol. VIII, p. 168). This description would be excellent were it not for the fact that he has the usual number to the clutch wrong, the average size wrong, and the form, color and markings all wrong; otherwise it is pretty good.

Coues says for this bird: "Eggs usually 2, 3.50x2.25, elongated and pointed, dull greenish-drab, with dark brown and blackish spots" (*loc. cit.*, pp. 1049-1050). This description might apply to some few eggs of *Gavia immer*, but by no means to them all. It is a dangerous practice to publish blanket descriptions of birds' eggs, as it is with respect to much else constituting biological material.

Reed says of the eggs of the Loon: "The two eggs which they lay are a very dark greenish brown in color, with black spots. Size 3.50x2.25" (p. 7). How about no. 11 of figure 52 of the present article?

The same author says of the eggs of *Gavia adamsi* that it lays two eggs "size 3.60x2.25," and that in the case of this species "their nesting habits and eggs are precisely like the preceding (*G. immer*), except that the latter average a little larger," in all of which he is very probably correct. Of *G. pacifica* he also says "they lay two eggs of a greenish brown or greenish gray hue with black spots. Size 3.10x1.90" (*loc. cit.*, pp. 9 and 10).

The eggs here shown in fig. 53 are from Mr. Court's collection and came to me accompanied by the following data: No. 14, *Gavia arctica*. Collector (?); Fornea, Lapland, 14 June, 1909. Set 2. Set mark 20. This egg measures 3.18x2.00.

No. 15. *Gavia stellata*, Oefusa, Iceland, 12 June, 1910 (35.49.2). I find the specimen to measure 2.80x1.80, which is somewhat above the average size for this species.

No. 16. *Gavia stellata*, Oefusa, Iceland, 2 June, 1910 (38.34.2), a specimen which I find to measure 2.80x1.80. All three of these are of a deep greenish olive ground, deepest in no. 14, lightest in no. 15, with blackish brown spots distributed as shown in figures. There is no disposition for these spots to especially congregate at the larger end in the case of any of these eggs, this being but slightly evident in nos. 15 and 16, but not at all so in the case of no. 14.

Coues does not refer to either the color or the markings of the eggs of *Gavia stellata*; he simply says: "Eggs 2-3, 3.00x1.75." As to the ground color, I may say that there is a great similarity with respect to it among all species of loons of the genus *Gavia*.

Variations in size and form, as found in the case of loons' eggs, is well shown for the Red-throated Loon (*G. stellata*) in fig. 54 (nos. 17-19). These interesting examples are also from Mr. Court's collection and bear the following data: No. 17, Oefusa, Iceland, 12 June, 1910 (38.92.2), an unusual form of egg, which I find to measure 3.02x1.74.

No. 18 was collected by A. W. Johnson on the 20th of May, 1874, at Orfiord, North Iceland. There were two in the clutch, and I find it to measure 3.00x1.81.

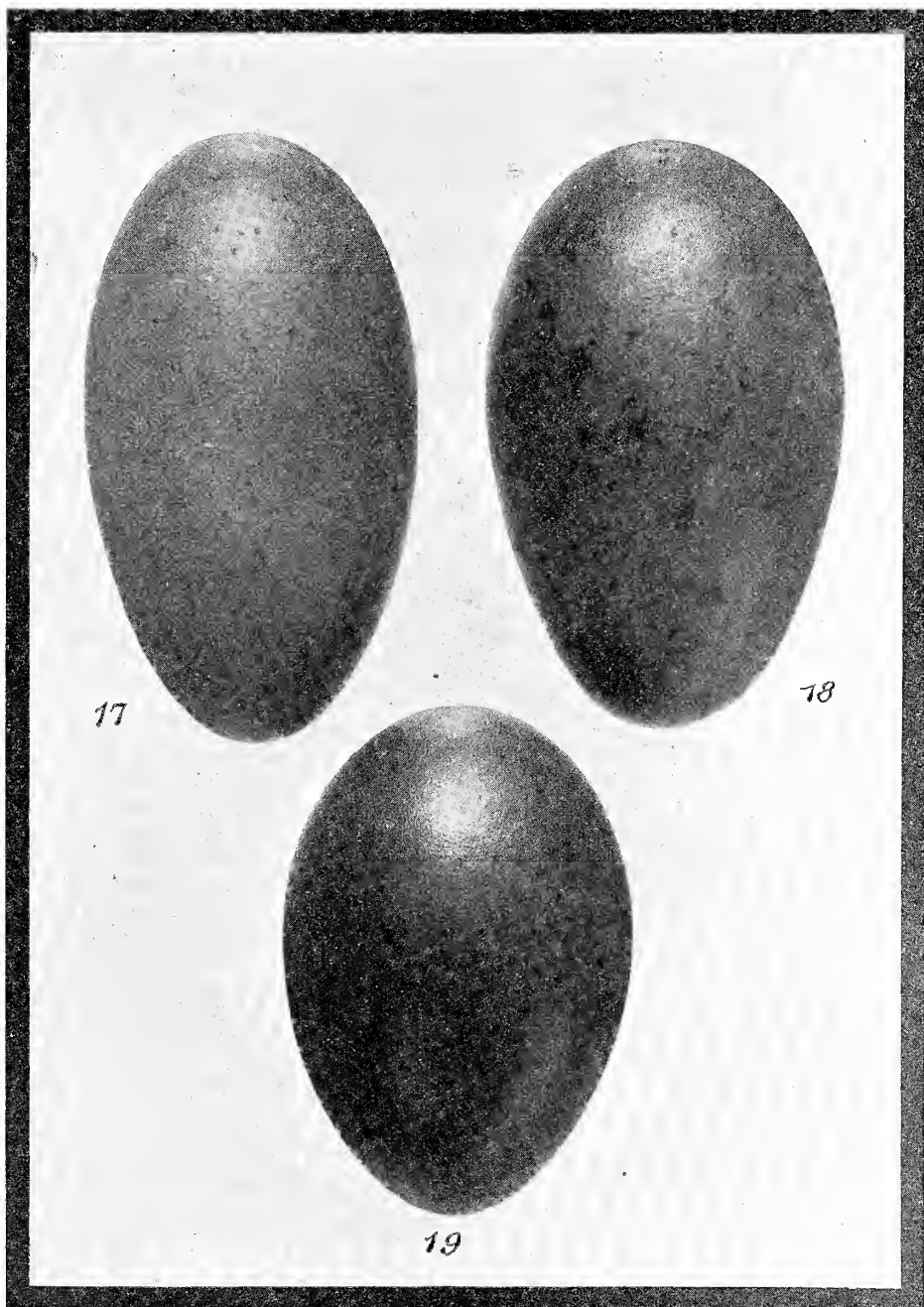


Fig. 54. EGGS OF RED-THROATED LOON (*Gavia stellata*), NATURAL SIZE, SHOWING VARIATIONS IN SIZE AND FORM.

No. 19. Collected by Paul Thorasimsson, on the 15th of June, 1905, at Lake My Vatn, North Iceland (set e 1-2), measures, according to my measurements, 2.60x1.80.

Nos. 18 and 19 are both very dark eggs, while no. 17 is lighter. In the case of no. 19 most of the spots are very fine, even minute, with only a few larger ones. In no. 18 they are larger and blacker, those at the greater end being, in fact, great blotches and mostly confluent.

In the egg belonging to the same clutch with no. 18, there is a blotch near the butt which measures 20 millimeters by 10 millimeters, or nearly the size of one's thumb-nail. One still nearer the butt is nearly as large; but such markings in the eggs of loons are exceptional, and in any case appear to be formed by several smaller blotches, overlaid by somewhat thinner and very slightly lighter ones.

Loons' eggs are very different from any of those of the *Alcidæ* or auks; indeed, in the case of some of the latter, the eggs are pure white, and present no markings of any kind whatever. Moreover, some of the puffins and other species lay but a single egg, although other auks lay two, and, as we know, so do the humming-birds.

These facts are alluded to simply to illustrate the point that the *number* of eggs laid by a bird of one well-defined group, selected as a single characteristic, is by no means a safe one to go by in taxonomy, in the matter of arraying that bird, or family of birds, with another group, simply for the reason that some of the latter assemblage may chance to do the same thing.

Still, in avian classification, the characters presented on the part of eggs always mean something, and such data is often of use in this connection; but it should never be employed as a single factor more than to be additional evidence, with respect to affinities, when associated with what is presented on the part of structure, habits and distribution.

As yet we have not the knowledge which will admit of correctly stating why it is that all loons lay two dark-colored, spotted eggs; but there is a reason for their so doing. And were we able to trace the matter back far enough into the past, that reason could be brought to light. For instance, could we but know what kind of an egg *Hesperornis* and its descendants laid, it would greatly help out.

Washington, D. C., October 13, 1913.

## FROM FIELD AND STUDY

**A Plea for More Lasting Field Notes.**—What happens finally to all the ornithological field notes that are made? A few of them are left to state and local institutions and societies, some to close personal friends of the deceased, and by far the greater majority I imagine, are put away with odds and ends in an old trunk until a house-cleaning by some member of the next generation puts them in the ash barrel. Again, how many of these notes are put and kept in concise, connected and decipherable form so that they may some day be of use to others?

From what I have myself seen I feel safe in venturing the statement that a good percentage of the average men who are interested in birds, other than those connected with some museum or other institution, will find that their old notes are scattered through notebooks of different sizes, and some of them, at least, stored with other old papers where they may be forgotten and at best hard to get at.

Notes that are worth taking at all are worth keeping in orderly condition and

passing along so that they may be of use to others. There are numberless ways of keeping field records systematically, and most of us have our own little pet notions about the one best way for this. What seems to be most desirable is to keep each species separate in card index form, making the different entries under their proper heads as soon as one returns from a trip. This in a way is a little cumbersome and has other drawbacks. Probably most of us in referring to our notes wish to refresh our memories in regard to the birds of some one section rather than general notes relating to a particular species. On the other hand, those who make nearly all their observations in one section would, I think, find the card index system of species most desirable.

I do not pose as an authority on the best method of note-keeping; I only know what system best suits my individual needs. While in the field and the majority of our birds are wrapped up, it is often hard to tell just what subspecies we take from day to day,—for instance, whether we have a Pileolated or a Golden Pileolated Warbler on a certain day, and there are often other things in our notes that need correcting. As soon as I return from a trip I sort out and identify the doubtful subspecies, make a note of the latter, and copy my notes. Those whose chirography is more legible than mine can trust to their pen, but I typewrite mine on a good quality of paper with the best and most lasting ink-ribbon obtainable, fasten the sheets together with paper clips, put the notes of each trip in a labelled manila folder and file the folders away in a fiber case. Some may object to this method, but the main and only thing is to have your notes in a lasting and legible form, and to follow some simple standardized system.

After the advisability of keeping notes for your own reference, is to see that after you are gone, they shall be put where they will be of the greatest help to others. Don't leave them knocking around to be thrown out with your old worthless papers, and don't leave them to your best friend. I would give a good deal if a certain ornithologist whose memory we all revere had put his notes where they could now be located,—notes that are a good deal more valuable than most of us have ever made; so, for the cause of science and the help of those younger ones who will be left when you are gone, instruct the members of your family to send your notes to some safe and sound institution where they will be in safe keeping and accessible to those who wish to use them. In order that these would not be too scattered, why not, all you western ornithologists, leave your notes to the Cooper Club? Mr. Grinnell, at the Museum of Vertebrate Zoology, Berkeley, or Mr. Chambers, at Eagle Rock, where most of the Club property is housed, are well situated to take care of these field notes, and could loan parts of them to members in good standing who might be engaged in special work. In time, this would grow to be quite a feature of the Club, and a very valuable one at that.—A. BRAZIER HOWELL, Covina, California.

**Notes from Vicinity of Claremont, California.**—In looking over the "From Field and Study" department in last CONDOR, I noticed Mr. Pierce's note on *Phainopepla nitens*. Although it is a well known fact that *Phainopeplas* winter here in small numbers, I thought it might be of interest to record that they were especially common the past winter. There was not a day passed that I did not see at least one of these birds and no day when it would not have been possible to find on search a half dozen or more. I have in mind particularly a female that resided all winter in the trees (pepper and sycamore) around the grammar school. It was while hunting on the mesa that I encountered them most often, in bushy country.

In connection with this I should like to mention the scarcity and peculiar actions of the Cedar Waxwings (*Bombycilla cedrorum*). As I was particularly anxious to obtain specimens of these birds I watched for them most carefully all winter. Although a common winter visitant, there were none here during December or January, and it was not until the first part of February I received word of a flock west of town. I searched diligently all the pepper trees in the vicinity for three separate days, but was unrewarded. Nothing was seen of them again until the middle of March when a flock of about five stopped in town for a day or two and then passed on. During April they became common but were nearly all gone by May first. Both Mr. Pierce and I spent our spare time searching in pepper trees just outside of town with no result. Although we naturally associate Waxwings with pepper trees, yet I did not see a single Waxwing in

a pepper tree. All the flocks I saw were in sycamores, eucalyptus, camphor trees and evergreens, on the campus. The fact I wish to call attention to is that they were seen commonly *not* in pepper trees but feeding on the berries of the camphor (*Camphora officinalis*).

I had occasion this spring to witness an act of wanton destruction, committed apparently from jealousy. A Hummingbird (*Calypte anna*) had built a nest in a small tree just outside my window. Within fifty feet was the nest of a Cactus Wren (*Heleodytes brunneicapillus couesi*). The Cactus Wrens paid little or no attention to the hummer's nest until the two eggs were laid and incubated for one week. During the week of incubation both Wrens were observed to be prowling around acting suspiciously, and finally the female (?) was actually seen to approach the nest when the hummingbird was absent, and to smash both eggs, tear the nest down on one side and then depart apparently satisfied.

On March third, while hunting on the mesa I discovered a Gambel Sparrow (*Zonotrichia leucophrys gambeli*) which had been reduced to a terrible plight by a broken wing. The body was terribly bloated, the neck projected outward and was so swollen that the head was pointed downward and inward, and the bird barely able to run. In spite of this the eyes were bright and vivacious. I sent the bird intact to Mr. H. S. Swarth and he replied saying the body had been bloated and practically skinned alive by air entering through a broken humerus.—LEON LLOYD GARDNER, *Dept. of Zoology, Pomona College, Claremont, California.*

**Cedar Waxwing Nesting in Humboldt County, California.**—On August 3, 1913, my friend, W. W. Moore, came to my home, and told me that a pair of strange birds were getting nesting material in his yard. It was but a short while before I went over there and sure enough there was a pair of Cedar Waxwings (*Bombicilla cedrorum*) one of which was tearing at an old piece of cotton rope, which was tied to a post. After it had enough, both birds flew over a narrow strip of tall alders and down into a gulch heavily covered with young alder, willow and a few myrtle bushes: not a very promising outlook on account of the distance the birds flew before they went over the alders.

The way we found the nest, my friend staid in his yard and I went down into the gulch and when the birds left he would whistle and I would be on watch for their coming so as to get some idea as to where to look for the nest. We had to do this several times before the nest was found, as the birds would go to a different clump of willows each time, and would very soon fly up and go to a patch of myrtles on the bank on the other side of the gulch. The nest when found was about ready for lining, and was left until the 11th of August, when nest and four eggs were taken, incubation indicating a full set.

This is the second set of Waxwing I have taken in this locality, the other having been several years back. I did not keep the date of taking that set.—JOHN M. DAVIS, *Eureka, California.*

**Occurrence of the Yellow Rail in Southern California.**—On January 31, 1914, while I was hunting near Corona, California, in a swampy meadow covered thickly with marsh grass and a few tules, both the grass and tules ranging in height from two to four feet, my dog flushed a strange small bird. It was shot and proved to be an adult female Yellow Rail, *Coturnicops noveboracensis*.

Several days later Mr. A. van Rossem and myself, after much tramping through this same small meadow, flushed another of these birds, which was collected. It was an adult male. Several times on this trip we heard what we were quite certain were the notes of these birds.

Again, about a month later, we visited this same place and while we did not flush or hear any more of these birds, we found some feathers in a small open pool and were very certain that they were from the breast of the Yellow Rail. Diligent searching through the swamps and grass-covered pastures near the above locality failed to disclose any more signs of these birds.—WRIGHT M. PIERCE, *Claremont, California.*

**Nesting of the Allen Hummingbird on Catalina Island.**—While on Catalina Island, March 20 of this year, I examined eleven nests of the Allen Hummingbird (*Selasphorus alleni*), as follows:

Two nests with nearly full-grown young. These young were of such size that I feared too close examination of them would cause them to leave the nest. Three nests with eggs: a set of two, incubation advanced; a set of two, fresh; a set of one, advanced. Six unoccupied nests. Of these three were undoubtedly new nests of the year; two looked like old nests of the previous season; and the remaining one was not examined closely enough to determine its condition.

To give an idea of how commonly these birds were nesting I might state that only

about thirty trees were examined for possible nests and that only 55 minutes was spent in the examination of the above nests, a process which involved the carrying about and placing of a very large and cumbersome ladder.—G. K. SNYDER, *Los Angeles, California*.

**White-throated Sparrow in Oregon.**—On April 27, 1913, I shot a male White-throated Sparrow (*Zonotrichia albicollis*) at Mulino, Clackamas County, Oregon. This is apparently the first record for western Oregon and the second for the state.—ALEX. WALKER, *Mulino, Oregon*.

**The Lewis Woodpecker Nesting in Alameda County, California.**—On June 12, 1914, I found a nest and pair of Lewis Woodpeckers (*Asyndesmus lewisi*) between Pleasanton and Niles, Alameda County. I was attracted to the nest by the female bird which began calling when I came in sight. She had in her bill what looked like a large black beetle. The male did not come around for about ten minutes, but when he did come, the two did not make much further noise. The nest was located in a solitary sycamore tree about forty feet above the ground in a dead limb. This tree was in the creek bottom within a thousand yards of the Grant Gravel Company's plant.—L. P. BOLANDER, *Oakland, California*.

**The English Sparrow as Occurring in Northwestern Montana.**—I should like to make one addition to my list of birds of northwestern Montana, published in the last CONDOR. Through my habit of omitting the English Sparrow from most of my bird notes, I find that I neglected to mention it in the manuscript. Not wishing to convey the impression that any county in Montana is free from this bird, I hereby supply the proper information, as follows.

*Passer domesticus*. English Sparrow. Abundant in all towns along the railroads in both Teton and Lewis and Clark counties. Small flocks also occurred in Choteau, Bynum and Augusta before these towns had railroad connections. Railroads have been built to all of these towns very recently (1913), and it is probable that the species will greatly increase in the near future.—ARETAS A. SAUNDERS, *West Haven, Connecticut*.

**Eye-color of Juncos: a Correction.**—I find the birds I called *Junco phaeonotus dorsalis*, on page 116 of the May CONDOR, are *Junco phaeonotus caniceps*.

We only had the 1910 *Check-List*, and Bailey's *Hand-Book*, with us in the field, and could not decide which subspecies the brown-eyed bird was, eventually deciding on *dorsalis* largely on account of the range as given in the *Check-List*.

Ridgway's *Manual*, however, proves all my birds to be *caniceps*, which he rightly gives full specific rank.—ALLAN BROOKS, *Okanagan Landing, B. C.*

**Early Arrival of the Ash-throated Flycatcher in the San Diegan District.**—The observation of an Ash-throated Flycatcher (*Myiarchus cinerascens*) in Los Angeles, California, on March 15, 1914, affords what is probably the earliest date of arrival of the species in this region. The bird was seen in a pepper-tree bordering the sidewalk, in the southwestern part of the city, on Normandie, near Santa Barbara Avenue.—H. S. SWARTH, *Museum of History, Science and Art, Los Angeles, California*.

**Unusual Abundance of the Glaucous-winged Gull on the Coast of Southern California.**—During the winter of 1913-14 the Glaucous-winged Gull (*Larus glaucescens*) was unusually plentiful along the coast of Los Angeles, Orange and San Diego counties. Although, during ordinary winters, immature birds of the species are rather frequently seen along our coast, adults are usually so far from plentiful as to call for at least a second glance from the bird observer. During the past winter, however, both adults and immatures were abundant at least as far south as San Diego Bay, where I noted many individuals March 13, 1914. On several occasions during the winter months I found the species numerous in San Pedro Bay and along the government breakwater at that place.—G. WILLETT, *Los Angeles, California*.

**The Eastern Sea Brant in California.**—On January 30, 1914, there was added to the list of the game birds of the state a new species, for on that date there was secured near Bird Island on Arcata Bay, Humboldt County, a specimen of the Eastern Sea Brant, *Branta bernicla glaucogastra*. This goose, an adult male, was shot from a flock of Black Sea Brant (*Branta nigricans*) by West Dean of Eureka. A splendidly made study skin of this bird was prepared by Mr. Franklin J. Smith, of Eureka; and the owner, Mr. Otto Feudner of Oakland, California, generously donated it to the California Museum of Vertebrate Zoology where it bears the number 24588.—H. C. BRYANT, *University of California, Berkeley, California*.

# THE CONDOR

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Western Ornithology

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HARRY S. SWARTH, Associate Editor

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## EDITORIAL NOTES AND NEWS

As the regular meetings of the two Divisions of the Cooper Ornithological Club are, with rare exceptions, held at the same places and at the same time, month after month, it seemed advisable to have a notice in each number of *THE CONDOR* calling attention to the fact. In this way out-of-town members who do not receive notices of the meetings, if occasionally in a position to attend, will have at hand the necessary information. Accordingly there will be found in this issue and in succeeding numbers, a brief statement of the usual place and time of meetings of the two Divisions, together with instructions as to ways of reaching the places. See page 192.

We wish to call attention to, and emphasize the importance of, *careful* note-taking on the part of all students of natural history. Even the merest beginner in bird study should at once put into operation some adequate and lasting system of recording his field observations. Unfortunately, as pointed out by Mr. A. Brazier Howell in his forceful "Plea", in the present issue of *THE CONDOR*, there are well-known ornithologists who have been lamentably careless in this duty. In certain instances much of the value of a life-time of gifted effort has been

lost to our science because of failure to keep up, in permanent form, a daily record of observations and inferences.

*The Oregon Sportsman* for June, 1914, under the editorship of Mr. William L. Finley, stigmatizes the common house cat as the "greatest enemy of the birds." We heartily concur in this statement, and take the liberty of quoting the following aphorisms from the same live exponent of conservation. The cat is the arch enemy of all song and game birds. Cats probably destroy more birds than all other animals combined. In one case a "family owned a cat which was well cared for and a particular pet. They watched it through one season and found that it killed fifty-eight birds, including the young in five nests." The boy with the air gun is not in the same class with the cat. Why arrest a man for killing one bird and allow a cat to kill fifty? As a general rule a good cat is a dead cat. *Always kill the stray cat.*

The California Museum of Vertebrate Zoology has been represented in field work this season as follows: Mr. H. C. Bryant, with J. N. Kendall as assistant, put in the month from May 11 to June 11 in exploring the breeding grounds of ducks within the state of California from Merced County to the Oregon line. All sorts of information was gathered, and efforts were made to secure censuses of the various species in given areas. A special paper is in preparation by Bryant summarizing the results of his trip. Mr. Chase Littlejohn spent a like period in similar work in the vicinity of Eagle Lake, Lassen County. With the rapid settling up of the country, it has seemed highly desirable that special efforts be expended in the directions above indicated. The Museum is fortunate in having been provided through private gift with the means enabling it to work along this line. One of the objects in view is the publication of a popular book on the game birds of California, to appear under the authorship of Grinnell and Bryant.

At the Thirty-second Stated Meeting of the American Ornithologists' Union, held in Washington, D. C., April 6 to 9, 1914, the following committees (for the 1915 meeting in California) were appointed. *Auditing*: Joseph Mailliard, Louis A. Fuertes, Walter K. Fisher. *Arrangements*: Joseph Mailliard, Joseph Grinnell, Walter K. Fisher. *Communications*: Walter K. Fisher, Joseph Grinnell, Joseph Mailliard.

Mr. Alfred C. Shelton was appointed in February last, field collector in the department of zoology of the University of Oregon. His duties consist in gathering birds and mammals for a departmental museum and in participating in the biological survey of Oregon now being conducted under the joint auspices of the University of Oregon, the

Oregon Fish and Game Commission, and the United States Department of Agriculture. Mr. Vernon Bailey, of the United States Biological Survey, is directing the field operations.

Mr. Tracy I. Storer, Secretary of the Northern Division, C. O. C., is giving a course on "The Birds of California" during the Summer Session of the University of California, June 22 to August 1, 1914. The course consists of lectures upon the more general phases of the subject, field work with the birds found on the campus, and laboratory study of specimens contained in the University collections.

At the recent meeting of the Pacific Association of Scientific Societies at the University of Washington, Seattle, a small but enthusiastic band of Cooper Club members met and considered matters of interest to ornithologists in the Pacific Northwest. The Club is indebted to Professor George F. Sykes, of the Oregon Agricultural College, for arousing interest and arranging for the meeting.

Mr. George Willett is spending the summer on Forrester Island, southeastern Alaska, where he is acting as warden of the Federal Bird Reservation constituted by that island.

Mr. A. C. Bent toured the western states during the spring and early summer gathering material for his "Life Histories of North American Birds." While in California he made a special point of visiting various bird collections, both public and private, for the purpose of examining specimens of water-birds showing molt.

Mr. Adriaan van Rossem collected in parts of Kern County, California, during the spring months, in the interests of the Mailiards. Among the specimens sent in is something brand-new in the red-winged blackbird line, announcement of which will shortly be made by Mr. Joseph Mailliard.

Parts of May and June were spent by Mr. Chas. L. Camp in exploring zoologically the eastern section of the Mohave Desert centering at Turtle Mountain. The resulting maps, notes and specimens have been contributed by Mr. Camp to the California Museum of Vertebrate Zoology.

It is a satisfaction to be able to announce in these columns that California is to have a state-wide campaign against the impending referendum, and threatened initiative, which have for their combined object the legalization of the *marketing* of all game and fish. Authoritative testimony, among the sources of which is no less an institution than the United States Department of Agriculture, insists that free marketing can only lead to the prompt extermination of our wild game species. The proposed campaign will be under the immediate manage-

ment of Mr. Walter P. Taylor, whose previous experience in conservation work brings confidence that success will attend his efforts now. A considerable fund has been placed at Mr. Taylor's disposal for the purpose of defraying the cost of the various measures planned to secure publicity. Indeed, such a campaign as this, resolves itself into a matter of *educating the public* as to the facts in the case and correct interpretations therefrom. The campaign will occupy the three full months immediately preceding the November election, and Mr. Taylor's headquarters will be at the California Museum of Vertebrate Zoology, Berkeley.

## COMMUNICATIONS

### THE CONDOR: A MAGAZINE OF VERTEBRATE NATURAL HISTORY?

Shall the scope of THE CONDOR be extended to cover mammals, reptiles and amphibians, *as well as* birds? An informal vote from Cooper Club members is hereby requested by the undersigned. The proposition will not be presented for formal consideration before the two Divisions of the Club unless a straw vote indicates general consent among all Cooper Club members. The following ideas bearing on the proposition have occurred to the writer.

There is now no one medium for the publication of natural history notes concerning all these vertebrate classes.

Interest in other vertebrate groups than birds would tend to be developed in our specialized bird students, and a knowledge of birds would be brought to the attention of specialists in the other groups. The broadened horizon would be to the advantage of all.

Interrelations, ecologic and economic, between the several vertebrate classes are so close that to secure a general familiarity with all assists to a better understanding of any one of them. Many of the problems in bird study will be more efficiently handled upon a basis of knowledge outside the group as well as within it.

THE CONDOR would become of interest to a much wider circle of readers. The circulation would be correspondingly extended.

The increased subscription list would warrant increased size of the magazine, so that eventually there would be added bulk. We would then have a more important and valuable magazine, provided always that an ideal standard of scientific accuracy combined with general interest be striven for.

The total amount of ornithological matter would not be diminished, except as subject to fluctuations resulting from the varying supply of suitable contributions.

As a vehicle of conservation propaganda, THE CONDOR of expanded scope would become more useful than at present, because game

mammals as well as birds are concerned. There would, however, be no more danger of this becoming either a sportsman's magazine or an exponent of sentimentalism than at present.

Purely technical matter would be given second place to life-histories, geographical notes, and field-and-study items, of the same character as those concerning birds alone and now appearing from issue to issue in *THE CONDOR*.

The auspices under which *THE CONDOR* is published should remain exactly as they are: the magazine would still be fostered by the Cooper Ornithological Club and would represent the interests of that organization to the highest degree.

Vote by postal card, "yes" or "no", with signature and date. Brief poignant comments are invited. Address before September 1:—J. GRINNELL, *University of California, Berkeley, California*.

#### DESTRUCTION OF BIRDS AS A RESULT OF VOLCANIC ACTION

[Editorial Note: Reports of the eruptive activity of Mount Lassen naturally arouse our interest as to the possible effects of such phenomena upon the animal life in the vicinity. The following letter indicates vividly how serious such a factor may become. We are indebted to Judge F. W. Henshaw both for calling our attention to this subject and for the privilege of publishing the letter. The authenticity of the account is established beyond doubt.]

Judge F. W. Henshaw,  
San Francisco, California;

Dear Sir:

Referring to the conversation I had with you a few days ago, relative to the destruction of game birds in Alaska, resulting from the eruption of Katmai Volcano on June 6, 1912, I am sending you under separate cover the February, 1913, issue of the *National Geographic Magazine*, which contains a very comprehensive article by Dr. Geo. C. Martin, on the extent of damage caused by this eruption.

Some of the photographs accompanying the magazine article will give you a very vivid idea of the desolation that was caused, and what effect such a deposit as shown in the pictures would have on nesting birds, within the radius of the fall of ashes.

During the period of greatest volcanic activity, from June 6th to June 8th, 1912, birds would frequently drop from the air, and in every case that I witnessed, would be dead when they landed. This shows, I

believe, that the gases had a deadly effect on the mature birds while flying. I was at Kodiak during the eruption, distant about 100 miles from the volcano; so if the gases from the crater had such an effect on birds at that distance, it is safe to say that very few birds on the mainland of Alaska, and within the radius of the disturbance, could have escaped.

On June 9, 1912, I had occasion to make the trip by tug boat from Kodiak to Seward. For a distance of about 120 miles at sea, and until we passed beyond the line shown on the map on page 132 of the *National Geographic Magazine*, as the limit of the one-quarter inch ash deposit, the sea was literally covered with dead birds, of probably every variety known in that section of Alaska. I dare say, that during the entire progress of the trip, for 120 miles, there was not a time when from 15 to 20 dead birds could not be seen from the deck of the steamer. When one realizes that it would be impossible to distinguish these birds over an area exceeding the size of a pin point on the map, he can probably get some conception of the vast multitudes of birds that must have been destroyed.

Again, the eruption occurred during the nesting season, or when the young birds were too immature to fly. Nearly all the bays and indentations of the coast within the area of disturbance, as shown by the map referred to, are headed by large flat tracts of marshy land, with many small lakes and streams. These places are the natural breeding grounds of many varieties of our game birds, and it is safe to say that millions of these birds were on the nests at the time of the eruption. The country surrounding the large lakes, from Clarke Lake south on the Alaska Peninsula, is also a vast breeding ground, and most of this territory was covered by the deposit of ash.

Possibly the scarcity of mallard ducks during the 1912-13 hunting season in California can be attributed to some extent to this eruption. At any rate, this variety seems to be in greater abundance than any other during the nesting season in Alaska, —or that part of Alaska which was within the limits of the disturbance,—so I believe that the eruption must have affected, to some extent at least, the numbers of these birds that migrated south. [See also article above referred to, pages 179-181.—Ed.]

With kind regards, I am,

Very truly yours,

W. J. ERSKINE.

San Francisco, April 7, 1914.

FIELD EXPERIENCES ON THE COAST OF  
CHILE

Editor THE CONDOR:

On my return from Juan Fernandez Island I received your letter, but regret to say that the package of Condors which you so kindly forwarded could not be located at the Valparaiso postoffice. They would certainly have been appreciated, as United States publications come high down here. Mrs. Beck was nearly speechless when charged fifty cents for a fifteen cent American magazine in Lima, Peru.

Retrieving hummingbirds on Juan Fernandez was like retrieving mountain goats in cliffy canyons of the Rocky Mountains, if the published yarns of such feats be true. One had to lay down his gun and climb down by tree roots, at times holding by one hand so as to secure a hold with the other on the rocky ledge below and search amid ferns and grass for his bird. One beauty, I remember in particular, was shot in the edge of the trail at the top of the mountain where some sixty years ago an English man-of-war's crew erected a tablet in memory of Alexander Selkirk, the well known Robinson Crusoe who spent four years and four months in complete solitude on the island, if the tablet be believed. The bird dropped only thirty feet, but it was necessary to go below and climb up over roots on the face of the cliff, holding on to grass stems or loose rocks that in some places gave way at a touch.

Pigeon collecting there also was different from California styles. One would take a boat and row along the shore, and the pigeons flew by from rocky perches as Baird Cormorants might do in home waters. The Sparrow Hawks, though, acted the same as our home birds; and I even flushed a pair of California Quail one day to my great surprise. The quail had been introduced a few years before and were increasing, so the natives said. The first day on the island, when at the edge of the forest I dropped my hand into the pocket of the sleeveless shooting coat for shells, the odor in the air took me back to the hills of Monterey. How like the sage-brush smell it was; and it *was* the sage-brush smell, carried all the way from Toro Canyon, Monterey County! The coat had not been used since the first day of the quail season the year before, and it had never been emptied of the debris accumulated when following the elusive birds on brush-covered hillsides. And speaking further of California quail, they were common in the Valparaiso markets both dead and

alive, costing about ten cents apiece. I took a snap at a cagefull on the street and heard several calling just back of the town in the canyons.

Changing the subject, you know that skeleton of the giant cuttle-fish (is it?) in the Golden Gate Park Museum? Do not some members of the squid family get about as large? I still remember (can it be thirty years back?) that old geography picture: the two sailors working with all their might chopping at the huge tentacles of a giant cuttle-fish that had grasped their boat while their sailing ship was beating up a mile or more away. Will you please tell me what part of the waters of the globe those monsters inhabit? If I can find out, I intend to give that locality a wide berth in this collecting business. I had thought the squids were night feeders, from the statements of my Monterey Bay fishermen friends; but collecting one day about six miles off Valparaiso, alone as usual, I noticed a bunch of kelp a short distance from me being agitated more than seemed natural by the light wind and sea, so rowed up and it was not kelp, but a school of squid feeding. They were only about four or five feet long; but to see those five or six long feelers rise out a foot or two above the water, reach forward and back toward the mouth about four times a minute—ugh! They were but fifteen or twenty feet away at times and could be seen perfectly; and then looking off, why there were acres of them! Schools of four or five and schools of hundreds. Birds were feeding among them, terns, shearwaters and gulls, on small shrimps, I found on dissection. But suppose they had been those giant relatives figured so graphically in the geography of my youth. Only a shrimp would I have been to one of those big fellows. I saw dozens of the bodies of these five-footers on the beach at Corral when coming south, and deliver me from any close acquaintance with relatives as large sized as that skeleton in the museum, please!

I made my first acquaintance with the Steamer Ducks here. With most of them it was a distant acquaintance. There are two or three particular birds near town here that if ever I get rich will see me again. In that case, I'm coming down here with a motor boat capable of twenty miles an hour, and a bag of salt, and if I don't sprinkle their tails it will be because they make for the kelp instead of the open water. Though they cannot fly, my best efforts with the oars take me about two feet to their three.

It is likely I'll have to go a hundred miles farther south to make the closer acquaintance of a series.

The one species of goose I've taken here is much different from any of our California visitors. They stand about on surf-beaten rocky points like the gulls, the male pure white and the female dark. But the Cinnamon Teal swing over bunches of tules as do the flocks in fall at Los Banos, before they leave for the south and the shooting season begins. The call of the curlew, and the sweep of the sanderling flocks, carries one back to the Alameda marshes; but the hoarse penguin call, and circling albatross in view from my window, bring me back again with suddenness to the Southern Hemisphere.

Sincerely,

R. H. BECK.

*Ancud, Chiloe Island, Chile. April 26, 1914.*

#### PUBLICATIONS REVIEWED

THE BIRDS OF NORTH AND MIDDLE AMERICA: [etc., 8 lines] | By | ROBERT RIDGWAY, | Curator, Division of Birds. |——| Part vi. | Family Picidae—The Woodpeckers. | Family Capitonidae—The Barbets. | Family Ramphastidae—The Toucans. | Family Bucconidae—The Puff Birds. | Family Galbulidae—The Jacamars. | Family Alcedinidae—The Kingfishers. | Family Todidae—The Todies. | Family Momotidae—The Motmots. | Family Caprimulgidae—The Goatsuckers. | Family Nyctibiidae—The Potoos. | Family Tytonidae—The Barn Owls. | Family Bunionidae—The Eared Owls. |——| Washington: | Government Printing Office. | 1914. | =U. S. Nation. Mus., Bull. No. 50, Part vi, pp. xx+882, 36 plates; "issued April 8, 1914."

It is certainly gratifying to the many admirers of Mr. Ridgway to note the regular appearance of the successive portions of his great work, the first of which was published nearly fourteen years ago. The latest volume, Part vi, of content as indicated in the above transcript from the main title page, shows the same high standard of treatment as in the best of the previous volumes.\*

In the six volumes which have appeared to date (as stated in the Preface, page vi, of Part vi), "are treated, in detail (that is, with full synonymies and descriptions), besides the Families above mentioned and the

higher groups to which they, respectively, belong, 520 genera, 2111 species and subspecies, besides 155 extralimital genera and 478 extralimital species and subspecies whose diagnostic characters are given in the 'keys', and their principal synonymy (full synonymy in case of the genera) given in footnotes."

There are a number of interesting renditions of systematic status among the higher groups,—interpretations which would bear much discussion, mainly, in the mind of the reviewer, corroborative of Mr. Ridgway's views. Our remarks in the present connection are best confined to nomenclatural and systematic points likely to be of most interest to students of western ornithology.

The yellow-shafted flicker which occurs rarely in California pure-blooded, more often as a strain in so-called "hybrids", is referred to under the name Boreal Flicker (*Colaptes auratus borealis* Ridgway), the assumption being that our birds are winter visitants from the far north (pages 20-22). Mr. Ridgway believes that "some California specimens are doubtless hybrids of *C. auratus borealis* and *C. cafer saturator*, whose respective ranges adjoin in northern British Columbia and southern Alaska." While the "Hybrid Flicker" has been the subject of several special essays, a new and exhaustive study of the case in the light of modern findings in chemico-physiology would, in the mind of the reviewer, very probably result in a different systematic treatment of western, purely yellow-shafted, examples, as well as of "hybrids".

As already announced (Ridgway, Proc. Biol. Soc. Wash., xxiv, 1911, page 34), a new genus is founded for that section of the old genus *Melanerpes* containing the California Woodpecker. The latter becomes *Balanosphyra formicivora bairdi*. This is possibly justified in the effort to secure uniformity in rank among related bird groups. But the continued general tendency towards generic refinement does not seem to the reviewer to be in line with the development of a clear and useful system of classification.

Bangs' name, *picinus*, is adopted for the "Western Pileated Woodpecker". The bird of the Pacific Coast from northern California to Vancouver Island thus becomes *Phloeotomus pileatus picinus*.

The southern race of the White-headed Woodpecker, *Xenopicus albolarvatus gravirostris* Grinnell, not admitted to the A. O. U. Check-List, is given full recognition by Ridgway (page 267).

The status of the western sapsuckers re-

\* For reviews of previous volumes, see: for Part I, CONDOR, iv, 1902, pp. 22-23; for Part II, CONDOR, v, 1903, pp. 22-23; for Part III, CONDOR, vii, 1905, p. 147; for Part IV, CONDOR, x, 1908, p. 53; for Part V, CONDOR, xiv, 1912, p. 110.

mains as held to by the A. O. U. Committee. But Ridgway remarks (foot-note, page 279) that "if *S. nuchalis* is to be considered as merely a sub-species of *S. varius* then, most certainly, must *S. ruber* also." He inclines to the belief that all three are distinct species, the occasional intermediates being viewed as hybrids, much as in the case of the flickers. While *S. v. daggetti* is synonymized under *S. ruber ruber*, a foot-note (page 286) is indicative of Ridgway's general attitude of open-mindedness. He says: "Mr. Swarth [Univ. Calif. Publ. Zool., x, 1912, page 35] seems to have made out a good case in favor of restriction of the name *ruber* to the northern form instead of the southern one. Unfortunately it is now too late for me to reopen the question."

"Western North America, east to and including Rocky Mountains; north to northern Alaska . . . ; south to western Mexico . . ." is the range assigned to the Western Belted Kingfisher, *Streptoceryle alcyon caurina* (Grinnell).

The Frosted Poor-will of the A. O. U. Check-list is thrown out by Ridgway, who lists the appertaining references (to *Phalaenoptilus nuttalli nitidus*) under *P. n. nuttalli*.

Our Barn Owl becomes *Tyto perlata pratincola*, this name applying to the species clear across North America and south to Nicaragua. "I am unable to discover constant differences of coloration between specimens from the eastern and western United States or between these and those from Mexico" (foot-note, page 606). *Tyto perlata perlata* is South American. *T. albus* of Europe is considered specifically distinct (page 601).

The supposed northwestern race of Saw-whet Owl, *Nyctala acadica scotaea* Osgood, is suppressed, this name appearing in the synonymy of *Cryptoglaux acadica* (page 633). Mr. Ridgway is unable "to make out any geographic variation in this species except a slight average difference in the hue of the brown of the upper and under parts, which is reddest in examples from the Pacific coast district", more grayish brown in those from the Rocky Mountains, and intermediate in those from the Atlantic side. These differences, as shown by present material, are not "sufficiently marked and constant to warrant subspecific division".

The Screech Owl of the Colorado Valley, named by Swarth *Otus asio gilmani*, is considered (foot-note, page 702) inseparable from the longer known *Otus asio cineraceus* (Ridgway), which ranges through southern Arizona. A new subspecies is described (page

700), *Otus asio brewsteri*, from the coast region of Oregon.

Of particular interest is Mr. Ridgway's conclusion, after adequate study of the case, that the Flammulated Screech Owl, *Otus flammeolus* (Kaup), presents absolutely no geographic variation. In other words no grounds whatever are found for recognizing a race *Otus asio idahoensis* (Merriam), which name has been allotted prominent place in western literature for over twenty years.

The Pigmy Owls along the Pacific coast are recognized as of three subspecies: *Glaucidium gnoma californicum* (Sclater), of the San Diegan district, the Sierra Nevada and the Cascades; *G. g. grinnelli* Ridgway (here newly named), of the humid coast belt from Monterey County to the mainland of British Columbia; and *G. g. swarthi* Grinnell, of Vancouver Island. The name *vigilante*, of Grinnell, becomes a synonym of *californicum*, owing to the discovery by Ridgway that Sclater's type, still extant in the Philadelphia Academy, belongs to the interior and southern form.

Mr. Ridgway finds that the Elf Owl presents three geographic races: *Micropallas whitneyi whitneyi* (Cooper), of southeastern California, southern Arizona and southwestern New Mexico; *M. w. sanfordi*, of southern Lower California; and *M. w. idoncus* of southern Texas and northeastern Mexico. The two latter forms are here newly described and named.—J. GRINNELL.

A MONOGRAPH OF THE GENUS CHORDEILES SWAINSON, TYPE OF A NEW FAMILY OF GOAT-SUCKERS. By HARRY C. OBERHOLSER. [United States National Museum, Bull. 86, April 6, 1914, pp. i-viii, 1-123, 6 plates.]

In this study of the nighthawks Mr. Oberholser has many changes to suggest in the generally accepted treatment of the group; and his researches in the genus *Chordeiles* have also incidentally resulted in important conclusions regarding certain others of the goatsuckers. The nighthawks, comprising the genus *Chordeiles*, are purely American in their distribution, while two of the three recognized species are distributed over much of that portion of America covered by the A. O. U. Check-List. They form an apparently well defined and circumscribed group of birds, and for various reasons afford an excellent subject for monographic treatment, there having been obvious necessity for such a study. Of the difficulties attending the work, one of the greatest was the need of a prodigious amount of material, while from the nature of the birds the average collector

gathers comparatively few specimens, and these frequently most indifferently prepared. With 1165 skins, however, the combined series of many public and private collections, the author appears to have had the subject matter sufficient to cover most of the points involved, though it is easy to appreciate his statement that the elucidation of the group "involved the expenditure of an incredible amount of time and labor".

Some of the most important of the conclusions reached by Mr. Oberholser are as follows. A new family, Chordeilidae, is erected, with *Chordeiles* as the type genus, and including also the genera *Nannochordeiles*, *Nyctiprogne*, *Lurocalis*, and *Podager*, the last four being all from outside the limits of the *Check-List*. The three species of *Chordeiles* are treated in minutest detail, *virginianus* with nine subspecies, *acutipennis* with five, and *rupestris* with three. One new subspecies of *Chordeiles virginianus* is described, *C. v. howelli*, from the central United States, breeding north to Wyoming, south to central Texas. *C. v. aserriensis* Cherrie, based on winter birds from Central America, is revived and considered applicable to the form breeding in southern Texas and extreme northeastern Mexico. Of *Chordeiles acutipennis* a new subspecies, *C. a. micromeris*, is described from Central America, and another, *C. a. inferior*, from Lower California. *Chordeiles rupestris*, confined to South America, is, from the paucity of material, necessarily passed over in a somewhat cursory manner, compared with the treatment accorded the others, but one new subspecies is described here also, *C. r. zaleucus*, from Peru.

In the introductory pages of the work there are some important discussions relative to branches of the Caprimulgi other than *Chordeiles*. The genus *Antrostomus* is divided, only one species, *carolinensis*, being left in *Antrostomus*, while a new genus, *Stochalcis*, is described, with *Caprimulgus vociferus* Wilson as type, and inclusive of certain other species heretofore referred to *Antrostomus*, mostly Middle and South American in their distribution. Mr. Oberholser considers *Antrostomus vociferus arizonae* Brewster to be a recognizable form, and distinct from *A. v. macromystax*, under which it is synonymized by the A. O. U. Committee.

Altogether it seems evident that this study is one of the most important contributions thus far made to the literature of American Caprimulgi. There will probably be differences of opinion as to the need of sep-

arately naming certain of the forms here recognized, but this is not a feature to detract from the value of such a work. The trained specialist, laboring on some special group, and poring for weeks or months in painstaking study over large series of specimens, will certainly see things that the more casual observer can not be expected to appreciate, and it will doubtless always be impossible to bring everyone in accord in such matters. The conclusions of a student such as Mr. Oberholser, reached after most careful consideration of ample material, are deserving of the utmost respect; and doubtless the majority of ornithologists will be quite content to accept his decisions, at least until some future worker with greater opportunities arises to revise the subject further. On the other hand, it is possible to see how it may not be expedient to admit in such a manual as the A. O. U. *Check-List* all of the finely differentiated geographical races, based on average differences, which the specialist feels obliged to describe, such action not necessarily implying disbelief in the statements of the latter. In other words, the student, in order to properly elucidate his problem, may feel obliged to attach a name to a race which, as far as concerns the ordinary user of an average manual of the subject, had best be omitted from such a catalogue.

To the present reviewer the work under consideration appears to be most excellent in every way. It is well conceived and carefully executed to the smallest detail; the subject matter is divided and set off in such a way as to make everything readily accessible; while the facts themselves and the deductions derived therefrom are presented by one who is evidently master of his subject.—H. S. SWARTH.

## MINUTES OF COOPER CLUB MEETINGS

### SOUTHERN DIVISION

APRIL.—The regular meeting of the Southern Division was held at the Museum of History, Science, and Art, Thursday evening, April 30, 1914, with the following members in attendance. Messrs. Chambers, Daggett, Edwards, Miller, Morcom, Rich, Robertson, Swarth, Willett, and Wyman. In the absence of the president, vice-president Robertson took the chair. The minutes of the March meeting were read and approved, followed by the minutes of the Northern Division for April. The following new members were elected: C. A. Brant, El Tovar, Grand Canyon, Arizona; William T. Martin,

Oakland; Halstead G. White, Claremont. New names presented were: J. Howard Richey, Pasadena, and Edward E. Armstrong, Chicago, both proposed by W. Lee Chambers. The resignation of B. W. Arnold, Albany, New York, was read and accepted.

No papers were presented, but there was more or less discussion of recent finds and observations by such of the members as had been doing field work.—H. S. SWARTH, *Secretary*.

MAY.—The regular meeting of the Southern Division was held at the Museum of History, Science, and Art, Thursday evening, May 28, 1914, with President Law in the chair, and with the following attendance: Messrs. Bent, Chambers, Colburn, Daggett, Edwards, Eggleston, Law, Rich, Robertson, Snyder, Stivers, Swarth, Wood, and Wyman. Mr. I. D. Nokes was a visitor. The minutes of the April meeting were read and approved. Two members were elected, Mr. J. Howard Richey, of Pasadena, and Mr. Edward E. Armstrong, of Chicago, both presented by W. Lee Chambers. New names to be acted upon were Miss Charlotte Bowditch, of Santa Barbara, presented by W. Lee Chambers, and Dr. Irwin D. Nokes, of Los Angeles, presented by A. E. Colburn.

The secretary was in receipt of several communications from the acting secretary of the Pacific Division of the American Association for the Advancement of Science, relating to the Cooper Club's relations to the Association, the proposed new constitution of the latter, and in regard to the meeting to be held in San Francisco in August, 1915. These questions were discussed at some length, but were finally left to the secretary, to be acted upon, at his discretion, but in general accord with the sentiments of the Club as expressed in the course of the discussion.

The fortunate presence in Los Angeles of Mr. A. C. Bent, of Taunton, Massachusetts, gave the Club members an opportunity of learning something of his plans and work on the life histories of North American birds. Mr. Bent kindly responded most fully to the request for an informal relation of what has thus far been accomplished, and his account of the history of the undertaking was given the closest attention.

The members then adjourned to inspect specimens and exhibits in the Museum.—H. S. SWARTH, *Secretary*.

#### NORTHERN DIVISION

APRIL.—The regular monthly meeting of

the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, California, April 23, 1914, at 8 P. M. President Bryant was in the chair, with the following members present: Mrs. Allen, Miss Atsatt, Messrs. Camp, Carriger, Chandler, Daggett, Grinnell and Storer. Miss Susan B. Culver and Messrs. L. R. Dice, C. W. Fender and B. H. Pratt were present as visitors. The minutes of the Northern Division for March were read and approved, followed by the reading of the minutes of the Southern Division for March.

Miss Edna A. Andrews, Berkeley, California, Henry F. Bailey, Santa Cruz, California, and James A. MacDonald, Lathrop, California, and the persons proposed at the Southern Division meeting for February were elected to membership. The following were proposed for membership: Miss Ada Ethel Crane, 7 Ross St., San Rafael, by H. C. Bryant; Miss Susan B. Culver, 2908 Channing Way, Berkeley, by Mrs. Amelia S. Allen; R. A. Emmons, Bureau of Biological Survey, Washington, D. C., by Alex Wetmore; Frank H. Lord, 726 Schrader St., San Francisco, by F. E. Newberry; and H. L. Pillsbury, 73 Cedar Ave., Long Beach, by W. P. Taylor, and two names proposed at the Southern Division in March.

Mr. Grinnell suggested that a committee be appointed to confer with the committee of the A. O. U. in regard to a joint meeting of the Cooper Ornithological Club and the American Ornithologists' Union in San Francisco in 1915. It was moved and carried that a committee of three, Mr. Joseph Mailliard to be one member, be appointed to consider the matter. Mr. Storer reported that arrangements were being perfected for a meeting of members of the Cooper Club at the general session of the Pacific Association of Scientific Societies in Seattle in May.

Mr. Grinnell then presented a paper on "Adaptations in Structure and Habits in Boreal Birds". A very interesting discussion followed the presentation of the paper.

Mr. Daggett, a member of the Southern Division for many years, spoke briefly on the earlier years and membership of that Division. Adjourned.—TRACY I. STORER, *Secretary*.

MAY.—The regular monthly meeting of the Northern Division was held at the Museum of Vertebrate Zoology, Berkeley, California, Thursday evening, May 21, 1914. In the absence of both the president and the vice-president, Mr. Carriger was appointed

to the chair for the evening. The following members were present: Mrs. Allen, Miss Andrews, Messrs. Carriger, Grinnell, Storer and Taylor. Miss Crane and Miss Culver, and Messrs. Martens and Schaeffle were visitors. The minutes of the Northern Division for April were read and approved and the minutes of the Southern Division for April read.

The following were elected to membership: Miss Ada E. Crane, Miss Susan B. Culver, Mr. R. A. Emmons, Mr. Frank H. Lord, Mr. H. L. Pillsbury, Mr. C. A. Brant, and Mr. H. C. White. The following were proposed for membership: Mr. Ernest Schaeffle, 734 Mills Bldg., San Francisco, by Tracy I. Storer; from the Southern Division: Mr. J. Howard Richey, Pasadena, and Mr. Edward E. Armstrong, Chicago, Ill., both by W. Lee Chambers. The resignation of B. W. Arnold, Albany, New York, was accepted.

The Secretary read a letter from Mr. A. L. Barrows, Associate Secretary of the American Association for the Advancement of Science, relating to plans now being made to establish a Pacific Division of the American Association to supplant the now existing Pacific Association of Scientific Societies. The letter was accompanied by a copy of the constitution which is proposed for the Pacific Division. The Secretary outlined the salient features of the constitution which concern the Cooper Club and pointed out the relation which the Pacific Division would bear to the Club in the event that present plans are carried out. It is planned that scientific organizations may affiliate themselves with the Pacific Division in much the same way as is now done in the Pacific Association of Scientific Societies. The principal advantages under the new organization will be (1) that a permanent secretary will be in charge of the affairs of the Division, and (2) that members of affiliated organizations (such as the Cooper Club) will be given the privilege of joining the American Association without paying the initiation fee of \$5.00. After some debate it was moved and carried that it be the sentiment of the Northern Division that the new arrangement is a desirable one and that the adoption of the constitution as outlined be favored.

The remainder of the evening was devoted to a report of the Permanent Committee on the Conservation of Wild Life by Mr. Taylor, the chairman, and discussion of the report by those present. Mr. Taylor first outlined the history of legislation for wild life conservation in California and dwelt

with particular emphasis on the recent campaign for a no-sale law. He pointed out that legislation for wild life conservation in California to be effective at all must be enacted immediately. In the past the sportsmen have been the promoters of such legislation, such organizations as the Audubon Society and the Cooper Club having appeared on the field in comparatively recent times. The legislation in regard to protection of wild life, recently put into effect by the federal government has come to the assistance of the conservationists in the state but the relief is not all that is desired.

Mr. Ernest Schaeffle, Secretary of the California Fish and Game Commission, then spoke on the same subject giving many facts determined by the Commission. He pointed out that the pursuit of wild life in California by hunters and others yields large financial returns to many people engaged in various lines. In his opinion the initiative measure for the sale of game which will be presented to the voters of the state at the election in November, if carried, will set back the work of wild life conservation twenty to twenty-five years. If the Fish and Game Commission had been on a scientific basis in the past there would not be so many problems in wild life conservation facing the people of the state today.

A vote of thanks was extended to Mr. Schaeffle for his kindness in attending the meeting and participating in the discussion. Adjourned.—TRACY I. STORER, *Secretary*.

#### MEETINGS OF THE COOPER ORNITHOLOGICAL CLUB

**SOUTHERN DIVISION:** At the Museum of History, Science, and Art, Exposition Park, Los Angeles. Time of meeting, 8 p. m., the last Thursday of every month. Take south-bound car from town, on Spring Street the car marked "University"; on Hill Street the car marked "Vermont and Georgia". Get off at Vermont Avenue and Thirty-ninth Street. Walk two blocks east to Exposition Park. The Museum is the building with the large dome.

**NORTHERN DIVISION:** At the Museum of Vertebrate Zoology, University of California, Berkeley. Time of meeting, 8 p. m., the third Thursday of every month. Take any train or car to the University Campus. The Museum of Vertebrate Zoology is a large corrugated iron building situated on the south side of the campus immediately north of the foot-ball bleachers.

**For Sale, Exchange and Want Column.**—In this space members of the Cooper Club are allowed one notice in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. For this department address W. LEE CHAMBERS, *Eagle Rock, Los Angeles County, California*.

FOR SALE or EXCHANGE for books new to my library: Ridgway—Orn. of Ill., vol. I, 1889. Ridgway—Birds of N. and Mid. Am., I to V inc. Cooper—Orn. of Cal., 1870. Bendire—Life Histories, I and II, 1892-95. Henshaw—Report on Ornithological Collections, 1875. Cones—Birds of the Northwest, 1874. Cones—Third Installment Orn. Bibliography, 1879. Elliot—Wild Fowl, 1898. Nelson—Report on Nat. Hist. Coll. 1887. Cook—Birds of Michigan, 1893. Fisher—Birds of Laysan, etc., 1893. The Warbler—2nd Series, I and II. The Nidologist—nearly complete file. Orn. and Oologist—IX, X, XIII, XVII, etc. Condor—V, VI, VII, IX, X, XI, etc. Auk—XVI, bound; also XIV, XVI, XVII, XVIII, etc., parts.

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If interested send for complete lists, enclosing your own.—O. P. SILLIMAN, *Castroville, Calif.*

WANTED—*Osprey*, Vol. I, no. 2. Will pay any reasonable price for a copy to complete my files. Also want *Auk*, vols. 1 to 6 and 19, and copies of Journ. Me. Orn. Soc., and Bull. Mich. Orn. Club.—DR. T. W. RICHARDS, *U. S. Navy, 1207 19th. St., N. W., Washington, D. C.*

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FOR EXCHANGE.—Have many personally taken sets of British eggs, chiefly of the commoner species, which I shall be pleased to exchange for American sets. Correspondence invited.—P. C. DUTTON, *26 Lichfield Road, Stone Staffs, England*.

WANTED.—Copies of any of the following publications. Nidologist, vol. I, no. 2, Oct., 1893; Osprey, N. S., 1902, March, April and July; Oologist, May and December, 1897, April and September, 1899; Wilson Bull., no. 4, 1894. B. H. SWALES, *Grosse Isle, Mich.*

WANTED—Number 3 of Vol. 1 The Bulletin of the Cooper Ornithological Club; will pay cash, also exchange bird skins for eggs, or eggs for eggs; particularly interested in Eagles' eggs from anywhere.—L. BROOKS, *130 School St., New Bedford, Mass.*

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WANTED—Information of all sorts as to the breeding of ducks in California: Nesting dates, numbers of eggs in sets, proportion of young reaching maturity, areas inhabited, etc.—J. GRINNELL, *Museum of Vertebrate Zoology, Berkeley, Calif.*

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**THE  
CONDOR**

**A Magazine of Western  
Ornithology**



**Volume XVI**

**September-October, 1914**

**Number 5**



**COOPER ORNITHOLOGICAL CLUB**

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# THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XVI

September-October, 1914

Number 5

## THE NESTING OF THE SPOTTED OWL

By DONALD R. DICKEY

WITH SEVEN PHOTOS BY THE AUTHOR

WE HAD BEEN prospecting for a rumored condor ledge high in the coast mountains of Ventura County, California, and had come at night to a little valley where horse feed grew close to a clear, cold spring. It was an ideal camp site, and we left it with real regret as the early sun first began to creep down the western wall of the canyon on the memorable morning of May 15, 1913. In the bottoms it was still cold and damp, but as we climbed we slowly left behind the chill of the dark, sweet-smelling bays and the shade of the alder fringe along the creek, and came out into the open and warmth of the pines.

The saddle of the range which we were crossing was, roughly speaking, five thousand feet above the sea, so there was much to interest an eye and ear trained in the lowlands: here a fleshy crimson snow-plant, there a blue-fronted jay, so much the superior of our crestless, nest-robbing sneak of the lower live-oak valleys; or, perhaps, a slender-billed nuthatch "yanking" among the scattered oaks, or a friendly Bailey chickadee.

Once again the trail led into the shadow. This time at the foot of a high, overhanging cliff of red conglomerate, weathered out into fantastic castellated shapes. The pack horse was leading like a lamb for once in his aggravating career, so with leg flung across the saddle horn I had nothing to do but swing with the stride of old "Powhatan", and let my eyes wander eagerly over cliff face and tree.

Suddenly, in the black mouth of a pot-hole high on the rock wall, I caught a glimpse of a large round head. Almost instantly the bird shrank back into the dark interior, but the glimpse had satisfied me that I had seen my first Spotted Owl (*Strix occidentalis occidentalis*)! Man may voluntarily have come to the ground with greater speed than mine in that instant, but I doubt it. The

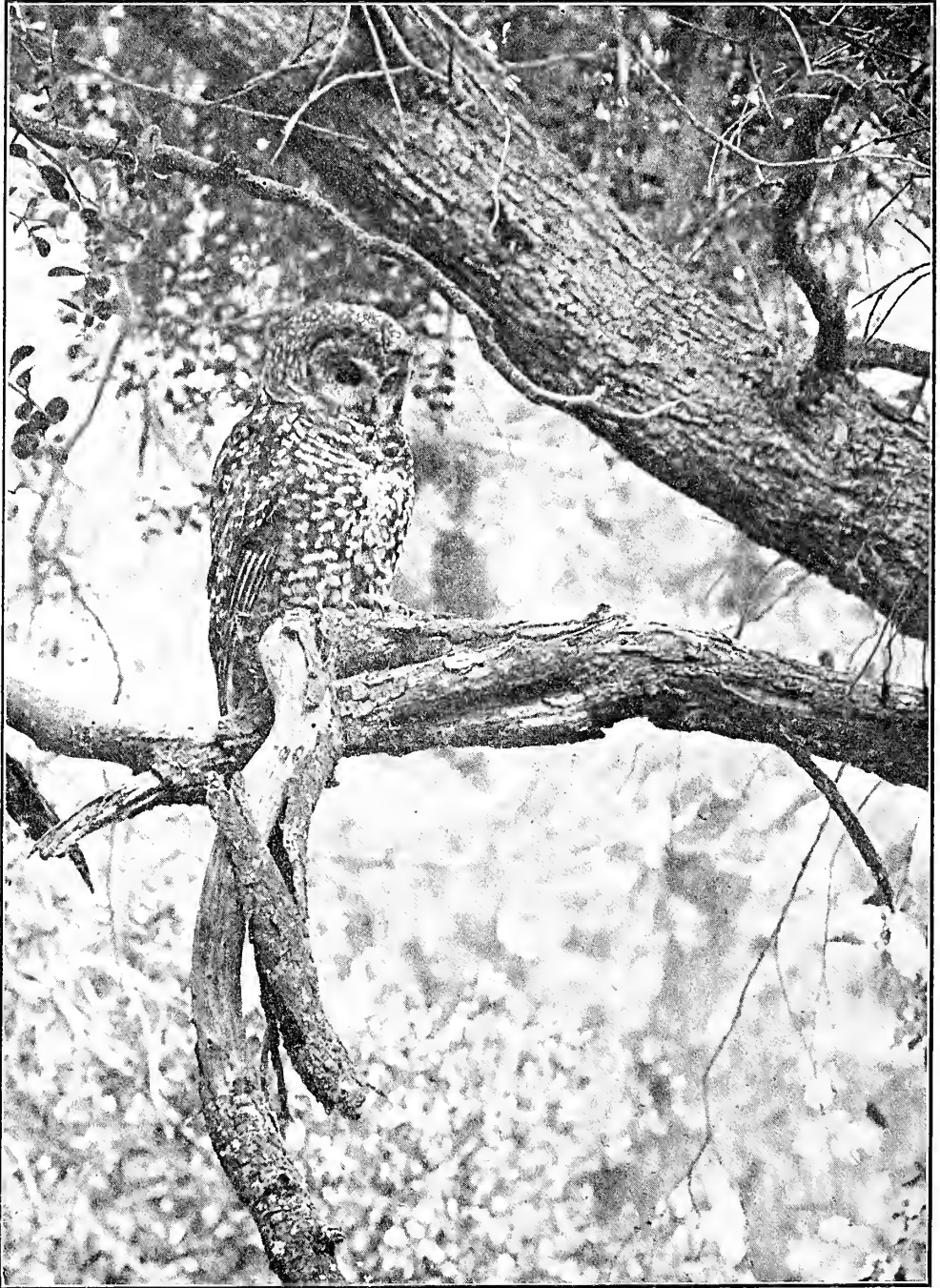


Fig. 55. AN ADULT SPOTTED OWL, *Strix occidentalis*, PEERED AT US FROM A CLOSE PERCH IN AN OAK.

hole, however, was sixty-five feet from the ground, nothing more was to be seen of the bird, and obviously nothing more was to be done without plenty of rope. So with many a backward glance we set out for the long ride back to civilization. To cap the climax of the day, we had hardly gone half a mile before we spied a condor circling low with evident interest in a white-marked ledge. Surely this was a day of days!

But the condors were destined to disappoint our photographic hopes. When we reached the spot again, after a slow-passing two weeks' delay, we found the birds still circling about the cliff, but a stiff climb showed the nesting ledge to be untenanted that year. For some reason they had not gone to

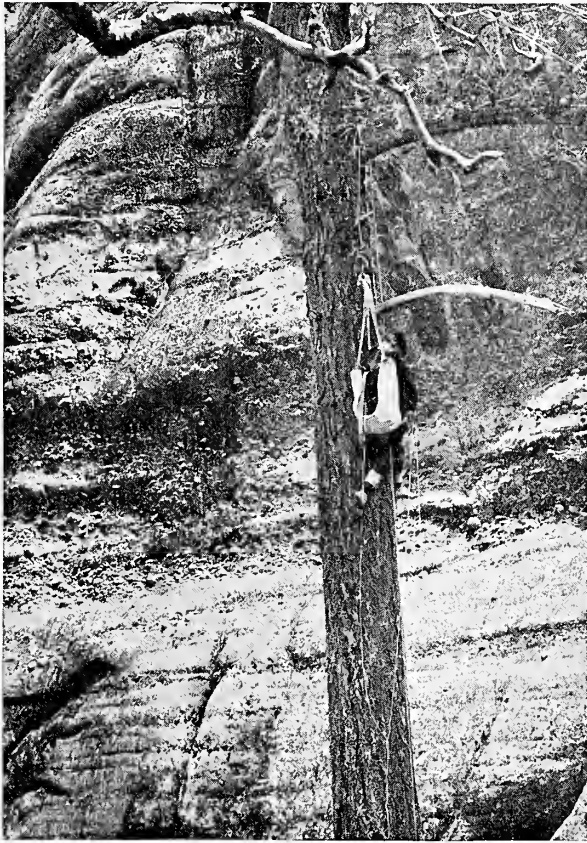


Fig. 56. SWINGING FROM THE FIR FIFTY FEET ABOVE THE GROUND.

housekeeping, although clinging tenaciously to the vicinity of their former nesting site. It was obviously their home even in the legal phrase, for it was "the place to which they returned for rest and recreation." But in the absence of egg or young they were rather shy for camera stalking. Nor could they be lured within range of a blind, even by the sacrifice of an antiquated equine offering. Poor "Ted",—a failure even in death!

The owls, however, behaved better. For, as Mr. Adriaan van Rossem, Mr. Philip Pierpont and the writer rode up to their home on May 31st, the old bird was sitting in plain sight on the edge of the nest hole with two well-grown

youngsters beside her. The round head and boldly spotted markings of the adult were plainly visible: we were looking on Spotted Owls at home! Small wonder that Van and I did something of a dance of triumph. To our astonishment the old bird did not seem to be disturbed in the least by our performance although we were directly below her. She merely peered down upon us, giving us splendid views of her plumage. Finally we left her to herself while we went on to pitch camp and look up the small birds a bit. The forms were characteristic of the altitude. The full, descending call of the olive-sided flycatcher set the key note, reminding us that the lowlands were left behind. California purple finches were singing in considerable numbers from the taller trees, western tanagers made flashes of color, and in the open places calliope hummers darted about. A courting male was taken by Mr. van Rossem. Every thick-foliaged oak had its black-throated gray warblers and, in an inaccessible crevice of the cliff itself, hundreds of white-throated swifts were apparently nesting. Twice a golden eagle sailed over us high in the air.

Next morning we reached the owl's nest early. To the best of my knowledge there had been but three previous authentic nesting records and astonishingly few records even of the birds themselves since the type was taken near old Fort Tejon in the early days of western ornithology. Bear with me, therefore, if I set down their actions and calls in perhaps too great detail.

A tall fir tree grew close in front of the cliff opposite the nest, and over a limb of this, as a preliminary to camera work, we tried to toss a weighted line. To our astonishment the weight almost struck the old owl. She had been perching in the tree and so perfect was her blending that we had not noticed her at all. She merely flew to a nearby tree. Her tameness was becoming more and more apparent. About nine o'clock, in spite of the noise of arranging rope and tackle in the fir, she (I use the feminine by assumption) flew directly to the nest. Judging from her movements, and from the low, excited squeaking of the young, she fed them—apparently something carried to them in her throat. If this was the case, the young were soon satisfied, for they retired to the inner sanctum of the pot-hole until afternoon.

The adult also slept the day away, but remained outside and in plain sight from where we swung from a limb of the fir fifty feet or so above the ground. We made what negatives we wanted, and then waited until four o'clock when all the owls had a period of sudden activity. The young came to the edge and tried their wings, hopping and flapping to and fro in the exposed part of the nest hole. The old bird, which had remained oblivious to the bang of our Graflex shutter, finally aroused herself and crawled parrot-wise along a narrow ledge of the wall face. She soon settled herself again, however, and slept so soundly that only by frantically flapping a focusing cloth could I even get her to open her eyes for a portrait. As the light grew too weak for photographs we left her still asleep with her back to the setting sun, the easiest sort of a target for even a stone.

Next morning the old bird sat dozing in a small oak near the nest, and only twenty feet from the ground. Her protective coloration, noticeable at all times, was particularly so this morning as she sat in the oak. But whether she clung to the cliff, or sat close against the mottled fir trunk, or in the spotted light and shade of the oak foliage, her harmonization was startlingly complete. This morning she seemed so oblivious to my approach that I was encouraged to climb the oak where a limb gave standing room on a level with her. An insane idea it seemed, and yet she was so absolutely devoid of common sense



Fig. 57. SPOTTED OWL: AS SHE SAT IN THE SPOTTED LIGHT AND SHADE OF THE OAK FOLIAGE HER HARMONIZATION WAS STARTLINGLY COMPLETE.

and fear that I was able to strap on my climbers and thud up the straight trunk below her till my hand was actually within five feet of her. All she did was to peer at me wide-eyed and bob slowly from side to side. But this was too close even for her, and she sailed across to an adjoining tree. She certainly was the incarnation of trusting tameness or stupidity,—call it what you will.

The new perch made photography impossible, but as we sat watching her we were treated to a glimpse of her morning toilet.



Fig. 58. SPOTTED OWL: THE NEST WAS A POT-HOLE SIXTY-FIVE FEET ABOVE THE GROUND.

every conceivable position she shook her feathers into perfect place and carefully preened away every frayed feather tip. There was something ludicrous in her every action. Even in the midst of her toilet there were sudden periods when Morpheus seemed to overpower her and she would doze off, only to awake with a start a few moments later and continue the performance. Her movements were much more gentle than those of the horned owls. The lack of their ear tufts and yellow irides also gave her a far more agreeable expression, although I must confess that certain startled expressions,—when one did succeed in startling her,—seemed unpleasantly lynx-like. When she moved along a limb her every movement suggested a parrot, really a striking resemblance.

The next thing was to reach the nest in order to photograph the young, and here our troubles began. It was a good example of the difficulties of judg-

ing distances in a big country. We guessed the cliff as one hundred and fifty feet high and a block of stone on its brim as perhaps twenty feet square. The latter turned out to be as big as a two-story house, while the end of our two hundred foot rope writhed sickeningly seventy feet above the ground when we lowered it from the brim. It did not even reach the nest. A tree that we dropped against the base of the cliff, after much perspiring axe work, also fell short. A ledge just below the nest proved unnegotiable even for the goat of the party,—who shall be nameless. All this meant one thing: more rope and another long round trip.

Along toward four o'clock the young again grew active according to their daily custom, and as they appeared the adult flew to the nest from the perch where she had slept all day. As she alit she noticed the tackle dangling just above the nest and immediately circled back to the fir, and began uttering repeatedly a low, indrawn whistle, "Whee e e?" with a sharp rising inflection. If this was intended as an alarm note it had no effect on the young. They remained on the edge of the nest and only increased the bobbing interest they took in the rope above their heads. Soon came the deep, "Whoo, whoo, who, who" of the other parent from far up the mountain. He was answered by the supposed female and a moment later he, too, flew down into a tree near the nest. As we rode away they sat in nearby trees, outlined against the piled-up cloud masses of a storm back in the range.

On the sixth of June we rode till midafternoon back up the zig-zags of the steep canyon trail among the yellow bells of the mariposa lily and the cream clusters of flowering yuccas. At last we reached the owl cliff and a ludicrous anticlimax. Picture the three grim cliff scalers with their five hundred feet of rope riding up and finding the owls not on the ledge at all, but come to meet them! It was nearly as bad as that, for there, in an insignificant oak across the ravine, sat the two youngsters with their parent. All three were well within the reach of any six-year-old boy. They were distant a hundred yards or so from the nest and the hillside rose so steeply on that side that they were almost level with the nest although not over fifteen feet from

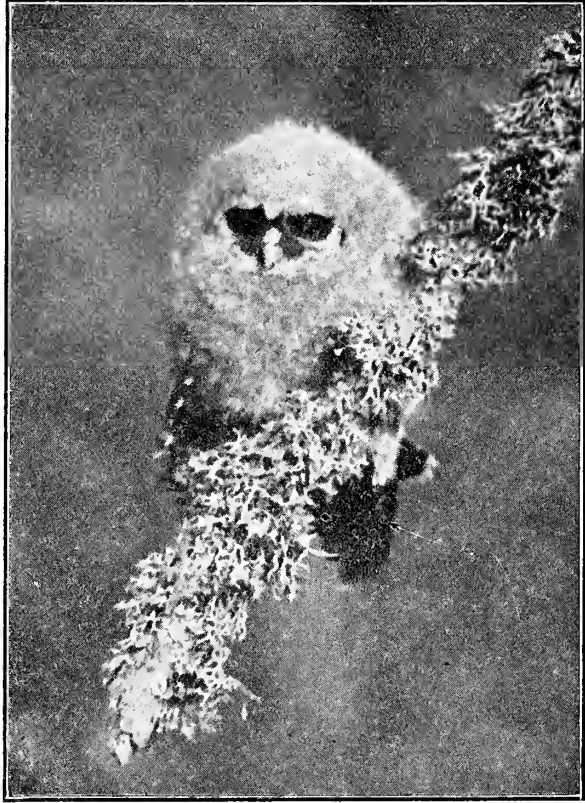


Fig. 59. YOUNG SPOTTED OWL STILL IN THE DOWN.

the ground. That the young could have reached the spot unaided seems incredible, for although the primaries were well grown out, they were, with that exception, in the complete down, and were still weak. The alternative is that the old birds, continuing their distrust of the dangling rope, had deliberately moved them. Certain it is that they would not normally have left the nest perhaps for weeks.

As we climbed to the young in the oak the old bird displayed her first sign of vital interest, flying within touch of the intruding heads and peering at us from close perches among the branches. But her passes at us were not fearsome things. She never even snapped her bill. Silently she swooped near,

rather in an effort to see plainly, or decoy, than to harm or frighten us. And now continually came the low, musical, indrawn, whistled "Whee e e ?". The call would have come more suitably from the bill of some wee plaintive fly-catcher than from this great bird of prey. She also gave vent at this time to an utterly indescribable, turkey-like chuckle. Finally she hooted, but so low that it sounded like a dove, "Coo', coo', coo, coo." But the mate heard and his booming answer sounded from one hundred yards up the canyon. I was listening particularly for the canine quality in the tone and it undoubtedly has much of the full-throated explosive effect of a baying hound. It probably will not hold as an invariable rule, but it is at least interesting that every time either adult hooted, they used the indicated arrangement of two long and two short notes, "Whoo, whoo, who, who." We looked up this last deep-voiced bird where he sat close against the trunk of a pine and he proved to be as foolish

as the supposed female. He did not even move when a pebble struck his foot.

The young were docile, downy little things of a soft grayish and buffy white. They used neither bill nor claw, and the direst threat of the larger bird was a slight parting of the bill as it shrank back from the touch of our hands. This larger bird we took to camp for the night as mascot of a happy party and as hostage from the parent owl. The other young was left in a tree.

We arrived next morning to find the old bird busily tearing at a fresh-killed brush rat. Under the tree were the plucked tail feathers and primaries of two jays, probably the work of the owls. Only one regurgitated pellet was found. That one contained the partial skull and leg bones of a mouse. By this time the light had grown stronger, and the

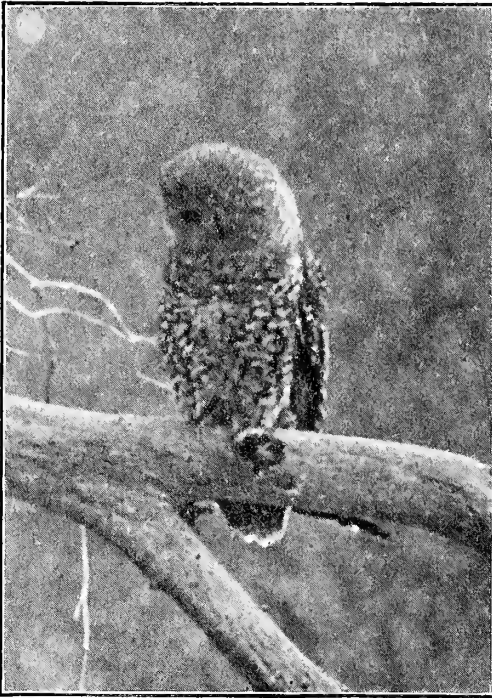


Fig. 60. SPOTTED OWL: SHE GAVE A LOW IN-DRAWN WHISTLE WITH A RISING INFLECTION.

old bird had ceased to show any interest whatever in the young which we were busily photographing. Instead she went calmly off to sleep.

We had decided to examine the nest in spite of its desertion, so in the cool of the afternoon we fastened a block to the end of our dangling rope, rove the new rope through it and went up from the bottom with the greatest ease. The nest cave was quite good-sized when examined closely, extending up and back for three or four feet. The nest itself, placed near the entrance, was two and a half feet across, and in situation and construction might well have been a raven's nest. Possibly it was so originally. In any event it had evidently been used for years. The comparatively large sticks of its foundation had rotted down and the interstices gradually filled with bones and hair until

it had become the mere matted platform of today. Behind it was the space into which the young retired during the brightest hours.

In the nest were the remains of another freshly-killed *Neotoma*, the dried



Fig. 61. A WILDERNESS OF PINES AND CLOUDS.

skull of some *Peromyscus*, and one dried pellet containing mouse bones. Oddly enough, no fresh pellets were found either in or below the nest, so I was unable to gather enough pellets for a comprehensive diet analysis. Such

positive evidence as we have, points solely to the smaller rodents as their source of food supply. Unquestionably, they are an exceedingly beneficial raptor, though their rarity would, of course, impair their collective usefulness.

As I hung there, studying at first hand the nest of a Spotted Owl, there came a last evidence of the bird's mild stupidity. Suddenly the shadow of her broad, silent wings fell across me, and I instinctively cringed. While I still clung to the nesting ledge with one hand, and to her protesting young with the other, she swept in and alit within eighteen inches of my fingers. And yet, so little of menace was in her eye and pose, that I calmly left my bare hand within striking distance until we were ready to lower away. Surely the veriest dicky-bird of them all,—so despised of Mr. Dawson in a certain raptor eulogy,—would do more to avenge the supposed rape of her offspring than did this taloned bird of prey, sitting idly by without apparently the courage to protect its young by fight, or the common sense to protect herself by flight.

One of the young was left in the nest in the confident hope that it would be safely reared there as soon as our tackle should be removed. The other and larger bird was taken, and is now in my collection. It proved to be a male, and furnishes a good example of the bird in the juvenal down.

On our way out the next day, we were delighted to see the adult bird and her young sitting complacently side by side in the nest as we passed, the old bird content in the quiet possession of her home, the youngster still abob with undiminished curiosity. And thus we left them—to the undying disgust of the dyed-in-the-wool collector of the party—left them to their wilderness of pines and clouds, and wrinkled, fog-filled valleys, thousands of feet below.

*York Harbor, Maine, July 25, 1914.*

## HENRY W. MARSDEN

By LOUIS B. BISHOP

ON FEBRUARY 26, 1914, at Pacific Grove, California, after a short illness with pneumonia, there rested from his labors Henry Warden Marsden. Known personally to but comparatively few ornithologists and even by name to not very many men out of California, the last fifteen years of his life were devoted almost exclusively to collecting birds; and those of us who possess the results of his work have not only beautiful bird skins but a living memory of an earnest, loyal helper, who spared neither time nor effort that our collections might be enriched with what we needed for scientific study, and no more. For, like all truly interested in birds, he hated to take life needlessly. Writing me from Arizona some years ago he said of the Pyrrhuloxia: "They are too beautiful to kill"; and in his last letter from Pacific Grove, written only a few days before his death, I read: "I have skinned forty Cassin Auklets which I found dead along the shore. I don't know what I shall do with them, but I hated to let them spoil." And this conscientiousness followed him through all his work. His chief fear, frequently expressed to me in letters, was that he would send us more than we needed of any species.

Things of beauty, as I have said, his bird-skins were, and probably, all things considered, the finest ever made; they could only have been the product of one with both rare talent and love for his work. And both of these he had, as well as interest in other branches of ornithology, though he wrote but little.

His letters to me breathed always the same spirit,—hope that he would get us what we wanted, sorrow that he had not been more successful, or extreme pleasure that what he had sent had proved interesting. He was our personal friend, to whom collecting was a pleasure, and who rejoiced in adding to our collection what it was impossible for him to keep himself.

Born in Boston in 1856, of English parentage, his paternal grandfather a clergyman of the Church of England, he worked for many years as a skilled accountant in the firm of C. D. Hovey & Company. Having lost both wife and child while still a young man, he lived for ten years in the family of Mr. A. G. Olney, of Woolaston, Massachusetts, his most intimate friend. Already much interested in birds he became a member of the Bristol Branting Club, founded by John C. Cahoon, whose clubhouse is at Monomoy on Cape Cod, and, after the sad death of the latter while collecting birds in Newfoundland, was elected his successor as Secretary and Treasurer. This post he held until sickness compelled him to seek a more genial climate than that of New England. At Monomoy he and the writer became acquainted in September, 1890. There, as we tramped the mud-flats and sand-hills together and fought mosquitoes, our mutual interest in birds from a different standpoint than that of sport drew us into a friendship that lasted till his death. Eskimo Curlew, which we obtained at that time, proved to be among the last taken in Massachusetts.

At Monomoy we met again for a few days in the summers of 1892, 1894 and 1897, but by the last year Mr. Marsden's health had begun to fail. That fall tuberculosis of the lungs manifested itself, and he spent the winter in Florida in search of health. Some improvement followed, and again we spent two weeks together at Monomoy the following August. But it was all too evident that the disease was not cured, and he returned to Florida for the winter, writing me from there in February, 1899, that he had decided to spend the summer and following winter there, and then go to Colorado.

"I hate awfully to give up my old associates, but I must submit to the inevitable", in this letter, was the nearest to a complaint I ever knew him to utter. So in broken health and well on toward middle age he turned his face to the West to spend the rest of his life among strangers, his home and friends left behind, and what seemed his life-work broken. But out of this apparent failure he made success, and found his true vocation. For, that collecting birds was his real calling, the excellence of his work attests. No one can do beautiful work unless his heart is in it. To some his work may not seem the highest in ornithology, but it was the direction in which his opportunity and duty lay, and perhaps some day we shall all realize better than now that there is indeed "no great and no small to the Soul that maketh all".

In the fall of 1899 he went to Colorado, spent the winter of 1900-01 in New Mexico, and on his return to Colorado the following spring began collecting birds for some of us in the East, which work he continued until his death. This gave him a new interest in life, and made him feel he was still of use in the world, even though he was incapacitated for a more confining employment. But, after temporary improvement, his health again failed, and in the fall of 1902 he moved to California, spending the winter in Redlands. Here he felt he had found the climate for which he sought, his health improved, and, after spending the summer of 1903 again in Colorado, he went to Witch Creek, San Diego County, California, which was henceforth his home. Most of the next year he spent at Witch Creek, his health and spirits steadily improving in the dry, warm air which he found there.

In January, 1905, he went to Arizona, spending February and October near Tucson and the months between in the Huachuca Mountains. There he added the Salvin Hummingbird to the avifauna of the United States. The winter saw him again at Witch Creek, and the following spring he joined a party under Mr. W. W. Brown, Jr., on a collecting trip to Guadalupe Island and other islands off Lower California. The hardships of this trip were too great for his enfeebled constitution; but he felt so much better after another summer and fall at Witch Creek that February, 1907, saw him again at Tucson. This time he visited the Santa Rita and Chiricahua Mountains; but the altitude, climbing, and lack of comforts told rapidly on his strength, so that by September he was obliged to return to Witch Creek.

This was the last time he left California. During the following year he made trips to various parts of this State, collecting more or less extensively in Humboldt, Mendocino, Yolo, Siskiyou, Tehama, Colusa, Solano, Merced, Kern, San Mateo and Monterey counties. At Sherwood, in Mendocino County, in 1908, he added the Chestnut-sided Warbler to the birds known to occur in California, and at Eureka the following year, the Alaska Longspur. Soon after he decided to make California his home, he joined the American Ornithologists' Union and the Cooper Ornithological Club, and enjoyed the friendship of those members of the latter that his travels allowed him to meet, and I think he left friends wherever he went. He was a delightful companion. No one could meet him without appreciating his absolute sincerity, or become acquainted with him without liking him. His letters showed he had much interest in the Cooper Club, but diffidence prevented his contributing frequently to the pages of THE CONDOR. He felt his true vocation lay in collecting and preparing beautiful specimens, not in writing about them. Occasionally notes by him may be found in THE CONDOR, as enumerated at the end of this article, but that is all.

Thus the years passed in an almost constant struggle against ill-health, and in loneliness tempered by his interest in his work. Early in November, 1913, he left Witch Creek on what proved to be his last trip, and, after a couple of months at Colusa, reached Pacific Grove in January. There, on the 17th of February, 1914, he added the Horned Puffin (*Fratercula corniculata*) to the list of California birds, and only nine days later, his long contest with sickness and loneliness ended, passed into a "sleep that knows not breaking, morn of toil, nor night of waking."

The following articles appeared from the pen of Henry W. Marsden:

Aerial Battle of Red-tailed Hawks, *Buteo borealis calurus*. CONDOR, VII, 1905, p. 53.

Feeding Habits of the Lewis Woodpecker. CONDOR, IX, 1907, p. 27.

Chestnut-sided Warbler at Sherwood, Mendocino County, California. CONDOR, XI, 1909, p. 64.

Alaska Longspur at Gunther's Island, Eureka, California. CONDOR, XII, 1910, p. 110.

*New Haven, Connecticut, June 23, 1914.*

## NOTES ON A COLONY OF TRI-COLORED REDWINGS

By JOSEPH MAILLIARD

**A**LTHOUGH some years ago I described a breeding colony of Tri-colored Redwings (*Agelaius tricolor*) located near an artesian well in Madera County, California, I have been so much interested in another colony

this year, with better opportunities for observation, that it seems pardonable to touch upon the subject once more.

The nesting ground before described (CONDOR II, November, 1900, page 122) was a remarkably crowded one. In a patch of tules of very limited extent beside a flowing well, the birds had built their nests in such numbers that many were abandoned when other nests were built above them, and the tules grew so high and thick as to make the lower tiers dark, dirty and inaccessible.

The colony breeding this year on the Rancho Dos Rios, Stanislaus County, California, was a much larger one than the above, but the breeding ground was acres instead of yards in extent. While there must have been several thousand birds in it there was plenty of room and no great crowding together of nests, though even with so much space there were many nests only a few feet, and in some instances only a few inches, apart. None, however, were built *over* others, notwithstanding the different heights above the water, varying from six inches to about three feet, the water itself being about knee deep.

While the writer first noticed signs of building on April 14, 1914, it probably commenced shortly before that date, as the spot had not been visited for several days previously. On that day birds were noticed carrying building material, and upon further investigation a few beginnings of nests were found. As only a comparatively small portion of the tule patch was explored it is very possible that there were some nests not seen on that day that were farther advanced in construction.

The colony was visited next on April 23 on which date some nests were found to contain their full complement of four eggs, some two or three, and others still empty but apparently ready for occupancy, the majority being those with two or three eggs. A few sets were selected from the vast number on this day and the next, and the eggs were found to be from fresh to slightly incubated, with one or two sets about one-third along.

Another visit was made on April 29, when most of the nests seen on the 23rd and 24th, along the paths made by forcing my way through the tules on that occasion, contained four eggs, although a few held only two or three, and some were still empty. A small number had hatched out within the last few hours, but nests containing young were scarce. There appeared to be birds yet building and a few sets seemed to be fresh. Among those nests in which incubation was completed the greater number contained from two to four young, yet a few held only one. Many nests were very poorly constructed, and were falling down on one side; so much so, in fact, that the eggs had evidently rolled out. In one such case a poor youngster, just hatched out, was the only occupant, and he was hanging on for dear life with tooth and toe-nail at the very lowest edge. Rapid growth of the tules may have had something to do with the condition of some of these nests, but there evidently was a great difference either in architectural ability or constructive energy among the members of the colony.

In the description of the Madera County breeding ground stress was laid on the fact of so many nests having been abandoned, while in this colony but few were deserted, and those possibly by the accidental death of the builders, and but few were robbed by hawks. It seemed, however, as if the birds must have stolen nests from each other; as, for instance, in the case of one set that was blown and found to be composed of three very fresh eggs and one extremely rotten one! And in another where one holding the full complement of four was found to be built over a nest already containing four eggs, rotten,

dirty and stained by the damp stuff which had been used to form the bottom of the second nest. Our collection (that of J. & J. W. Mailliard) contained a set of five eggs of *A. tricolor*, taken by Walter E. Bryant years ago, and the writer's ambition was fired to find one himself, never having been so fortunate in several previous experiences with breeding colonies of this species. On this occasion success crowned his efforts, and when just about to give up the search, wet and tired after the examination of hundreds of nests, a five set was discovered. Fortunately it was in such state of incubation as to allow of its being saved, and as to leave no room for doubt about its being actually one set instead of a combination like the two just mentioned above. By the time incubation was completed in the majority of nests and vast numbers of young beaks were opening wide for needed nourishment the barley in the neighborhood was just reaching the pulpy stage, being "in the milk", as it is called, when the kernels of grain are much relished by the redwings on their own account and much prized as a food for the young. Hence a large amount of damage is done by these birds when the grain is in this state, and this keeps up even when the grain becomes quite hard. But, while thousands of the redwings were visiting the barley fields, as many more were bringing in grasshoppers, cutworms, caterpillars and various sorts of insects in various stages of growth, and probably the harm done to the grain is more than offset by the good work of destroying injurious pests of the insect world.

A few adults were shot in the first week in May, at a time when some of the barley was in the most appreciated stage of development, to ascertain the contents of the stomachs. It happened that those particular individuals, at that time of day at least, had been more diligent in the matter of hunting insects than in robbing the barley fields, for only two or three grains of barley were found in each stomach the contents of which consisted mostly of insects of several sorts (not determined), grasshoppers being largely in evidence. That, however, a great deal of barley was consumed was shown by the stripped heads found on the stalks, to say nothing of the visual evidence of the flights of birds to and from the grainfields.

As the youngsters grew larger, leaving their nests and perching in the tules, the parents became busier and busier supplying food for the rapidly developing appetites, evidently deeming it necessary to maintain a large proportion of insect life in the bill of fare, judging by the direction from which food was brought and by the action of the parents when collecting the food supplies. When some nearby alfalfa fields happened to be irrigated great numbers of the adult birds arrived on the scene and gathered in quantities of fat grubs that were brought to light by the water, most certainly doing a beneficial act to the owners of the fields.

After hunger fear seemed to be one of the first sensations developed in the young nestlings. So much was this the case that the youngsters, say a week old, would flop out of the nests on the approach of a human being and fall into the water. It was impossible to force one's way through the tules without making more or less noise, and the number of suicides would have been so great if an extended visit had been made to the nesting ground that the writer contented himself with investigation of the outer edges, only, during the nestling period, not wishing to be responsible for a large and useless loss of life among the juvenile population. As the young left the nests and took to the tules their feeling of fear did not diminish, and they would flutter or scramble away so

fast in the thick high tules that it was a difficult matter to procure a few for specimens to show growth and development.

By June 15 the colony was greatly scattered, many of the young accompanying their parents abroad in search of food. Yet there were still some on the original ground which were too young to fly, as shown by the number of old birds carrying food to that particular spot. Those old enough for flight seemed to return to the tules every night, and often for the purpose of finding rest and shade in the daytime as well. By July 1 the colony was beginning to disintegrate, and even before that date small flocks of old and young together could be seen working toward the north, while but few were noticed returning from that direction.

*San Francisco, California, July 2, 1914.*

## BIRD NOTES FROM THE SIERRA MADRE MOUNTAINS, SOUTHERN CALIFORNIA

By H. ARDEN EDWARDS

DURING a recent trip, in June, 1914, to Barley Flats, a section of the Big Tujunga Range, of the Angeles Forest Reserve, I had the pleasure of observing an instance where the communal spirit was highly exemplified; and although the conditions bringing about a cohesion of interests that were perfectly harmonious so far as I could see, were to a certain extent arbitrary, yet it is interesting to note that five out of the six species involved were constantly brought, in more or less degree, into active competition with one another; and that in a locality where timber conditions forced them into an area of restricted activities.

The scene of this interesting bit of bird life was the bare stub of an immense fir tree, about eighty feet high, and probably six feet through at the base. The sole means of ascending it was afforded by several jagged cracks in the body wood (the bark being entirely gone) and an occasional slippery knot or stub, that indicated where long ago some mighty branch had swept outward and downward, bearing rich masses of dark green foliage. The members of this community which were of greatest interest to me were a pair of White-throated Swifts (*Aeronautes melanoleucus*) that had, or seemed to have, a nest in a large crack about thirty feet up. As I had never before found these birds nesting in trees, and all the data I have seen refers their nesting sites to inaccessible cliffs, etc., I was very properly "fussed up" about it.

Climbing up to the fissure where the female had flown in and out several times, I tried to use my flashlight and mirror attachment, but found that the crack extended side-ways for several inches, and then ran at right angles again; so there was nothing left to do but to take my pocket axe and pry off a section of the wood. To those who have had similar experiences, I need not describe my disappointment when nothing met my eager eyes, save the nest itself, which appeared to be completely finished. Now if I had not seen any birds around here and had opened this cavity, I should have said "a swallow's nest" and gone my way with peace of mind; but that the swifts were interested in it, and that very closely, was made manifest, when they darted at me and

swung about my head in ceaseless flight, and with frightened twitterings. The nest was composed of dried grasses, several needles from the big-cone spruce, some dried leaves, and a few feathers of a dusky white, that were evidently from the birds themselves. The dry grass was the dominating material and was woven, or rather laid, the long way of the crack. The inside of the nest was about two and a half inches in diameter, not over one and a half in depth, and was a little longer one way than the other. The whole affair was rather loosely built and there was no finish at the upper edge of the nest proper except a few coiled grasses.

After I had replaced the slab of wood as carefully as possible I continued up the snag to the next crack, which was some five feet higher, and showed on inspection seven full-fledged young of the Western House Wren (*Troglodytes aedon parkmani*). The little mother of this brood continued to fly back and forth to the nest with food all of the time I was on the snag, usually with some small moth or butterfly in her bill, sometimes several. The next thing to engage my attention was a small hole just around the tree from the wren's nest. After several ineffectual attempts to reach it, I was about to give it up in spite of the fact that the surface below the entrance was polished clean from recent use, when my ear caught a subdued hissing. At first I thought it was the young wrens, but on placing my ear against the stub and tapping lightly I found it to proceed from the hole in front of me; now, my bump of curiosity bulging, I was determined to see what was inside that hole, risk neck or not. So off comes my belt, and looping it over a branch a few inches long just above me, I placed my arm through it, and using my stockinged feet as levers, slowly swung myself out, till by extreme rubber-necking and the use of my one free arm, my mirror disclosed a tangle of what looked at first sight like a lot of animated mushrooms. Later observations disclosed their identity when a female Cabanis Woodpecker (*Dryobates villosus hyloscopus*) flew to the nest cavity with food for her young.

The next hole to stand inspection after I had taken a much needed rest, was on the south side of snag, eight or nine feet higher up, and contained one egg of the Mountain Chickadee (*Penthestes gambeli baileyae*). Just around the tree again and about four feet higher up, a pair of Western Bluebirds (*Sialia mexicana occidentalis*) had a cozy nest in a large cavity which sheltered two handsome blue eggs, looking as if two stray bits of the summer sky had become entangled in the grasses of the nest. Continuing up the snag I examined a number of holes and cracks, some containing old nests, others empty, until, within three feet of the jagged top, a female Western Martin (*Progne subis hesperia*) flew out of a hole on the north side. She scolded me to such purpose, that, instead of using my axe to pry into her house-keeping secrets, I threw it to the ground below, and followed after it, as best I might, finding, by the way, that it is far easier to ascend a snag than it is to descend it.

This completed my tally for this apartment house, and showed six pairs of insect-eating birds. Only one of these made extended trips beyond the circle of investing trees. These formed an open wall about a little mountain meadow or park-like space, covered with flowers, and therefore forming a pre-eminently suitable place for the capture of winged insects. The Cabanis Woodpeckers invariably flew towards the deep canyons on the north slopes of the flats, where no doubt they found pickings more to their liking in the shape of fat grubs among the fallen logs and stumps. As near as I could judge without a watch they made trips at intervals of about four minutes, the male carrying

food as well as the female. The wrens were the only other members that left the open spaces around the tree, and usually it was only the female, who seemed to do all the feeding. The male spent most of his time on a stub above the nest singing, occasionally making short excursions after food. The other four species spent most of their time around the tree itself; the Chickadees in an untiring search for insects upon the trunk and on the fallen limbs and bark around the base; the Bluebirds and Martins using the higher limbs as stations from which to pursue butterflies, etc.; and the two Swifts taking the stump as a point to circle and dodge around in graceful flight.

I noticed that the Swifts had a habit of suddenly darting straight down, as on the angle of a long V, and, making a half turn at the lowest point, shooting up again, in an ascent of inconceivable rapidity. As this brings me back again to this interesting bird, I will confess that I am all at sea, as regards this particular instance of unusual nesting. To all appearances the nest which I examined, and which I had seen the Swifts enter a number of times (nine in all, to be exact), was typical of the Tree Swallow (*Iridoprocne bicolor*) of which I had previously noted several pairs upon the flats, but none around this particular stub. All of the time I was on the snag the Swifts would fly at me, keeping up an angry and protesting twittering; and after I had come down, first one and then the other would alight at the hole and either go inside, or would hang on the edge for awhile and then fly off again with more excited twitterings. When at rest the white wing patches were very noticeable and also the extra long narrow wings that were crossed scissor-fashion below the tail. As there was absolutely no question of identification in this case, the query presents itself, first, what causes had operated to force these birds to choose this unusual nesting site? And secondly, was this nest entirely of their own making? I say entirely, because I saw one of the birds carry a piece of grass into the hole after I had left the tree. Or had they pre-empted a swallow's nest, remodeling it to suit their own taste? Of one thing I am positive, there was no soft vegetable or gummy matter of any kind in the nest composition (I lifted the nest up expressly to see), such as I have seen mentioned by all writers on the subject before.

In answer to the first question, I can only note a few facts that may bear upon the subject. In an area of eight or ten miles around the flats, there are very few cliffs that would fill the needs of these birds, those which are of any extent presenting few cracks or fissures that would serve as nesting sites. One exception of which I have knowledge is, or rather was, until the winter just passed (when a rock slide shaved it absolutely bare), a large broken mass of granite, high up on the slopes of Strawberry Peak (in the Big Tujunga Range) situated a short mile or so to the northwest of the extreme western edge of Barley Flats. Here in previous years I have observed numbers of the Swifts, during the breeding season, but the nature of the intervening country has prevented a closer investigation.

One other place where I have noted them in the breeding season is on the back slopes of San Gabriel Peak near the headwaters of the West Fork of the San Gabriel River. In preceding years the species has been fairly abundant along the rocky walls of the canyons here, but this year they have evidently been driven from their usual haunts by the heavy blasting which has been done, incidental to driving a new trail through the canyon. If our birds were some that were accustomed to nest in either of the places mentioned, or if an earlier nest in some more legitimate site had been by some cause destroyed, it might

easily be imagined that a dislike to leave this section would drive them to make their home upon the flats where, omitting the rocks and cliffs, other conditions would appear most favorable. Be that as it may, my untimely disturbance of the nest, must have destroyed all faith in its suitability, for after the first day they were never seen to enter it again, and in a couple of days left entirely.

I append a list of the birds observed upon the Flats.

- Band-tailed Pigeon. *Columba fasciata*. Several seen.  
 Sharp-shinned Hawk. *Accipiter velox*. One pair.  
 Cooper Hawk. *Accipiter cooperi*.  
 Western Red-tailed Hawk. *Buteo borealis calurus*. One seen.  
 Golden Eagle. *Aquila chrysaetos*. Examined a this-year's nest.  
 Long-eared Owl. *Asio wilsonianus*. Two young shot before our arrival.  
 Pacific Horned Owl. *Bubo virginianus pacificus*. Seen in the evening.  
 Cabanis Woodpecker. *Dryobates villosus hyloscopus*. Nest with young.  
 Red-breasted Sapsucker. *Sphyrapicus ruber*. One seen.  
 California Woodpecker. *Melanerpes formicivorus bairdi*. Breeding.  
 Red-shafted Flicker. *Colaptes cafer collaris*. Breeding.  
 Dusky Poor-will. *Phalaenoptilus nuttalli californicus*.  
 Texas Nighthawk. *Chordeiles acutipennis texensis*. Several seen.  
 White-throated Swift. *Acronautes melanoleucus*. One pair, breeding?  
 Black-chinned Hummingbird. *Archilochus alexandri*. Young in nest.  
 Anna Hummingbird. *Calypte anna*. Breeding.  
 Rufous Hummingbird. *Selasphorus rufus*. One male.  
 Arkansas Kingbird. *Tyrannus verticalis*.  
 Ash-throated Flycatcher. *Myiarchus cinerascens*. Breeding.  
 Black Phoebe. *Sayornis nigricans*.  
 Olive-sided Flycatcher. *Nuttallornis borealis*. In wooded canyons, among the pines.  
 Western Wood Pewee. *Myiochanes richardsoni*. Full grown young in nest.  
 Western Flycatcher. *Empidonax difficilis*. Breeding.  
 Wright Flycatcher. *Empidonax wrighti*. A pair seen carrying nesting material to outer limb, high in a pine tree.  
 Blue-fronted Jay. *Cyanocitta stelleri frontalis*. Nests found containing young and eggs.  
 California Purple Finch. *Carpodacus purpureus californicus*. Quite tame about the camp.  
 Lawrence Goldfinch. *Astragalinus lawrencei*. Breeding.  
 Sierra Junco. *Junco oreganus thurberi*. Breeding.  
 San Diego Song Sparrow. *Melospiza melodia cooperi*.  
 Spurred Towhee. *Pipilo maculatus megalonyx*. Breeding.  
 Green-tailed Towhee. *Oreospiza chlorura*. Breeding.  
 Western Tanager. *Piranga ludoviciana*. Nests found with eggs and with young.  
 Western Martin. *Progne subis hesperia*. Breeding.  
 Tree Swallow. *Iridoprocne bicolor*. Several pairs seen.  
 Northern Violet-green Swallow. *Tachycineta thalassina lepida*.  
 Western Warbling Vireo. *Vireosylva gilva swainsoni*. Breeding.  
 Hutton Vireo. *Vireo huttoni*. Breeding.  
 Lutescent Warbler. *Vermivora celata lutescens*. One pair around camp.  
 Black-throated Gray Warbler. *Dendroica nigrescens*. Three noted at camp.  
 Golden Pileolated Warbler. *Wilsonia pusilla chryseola*. One pair at camp.  
 Rock Wren. *Salpinctes obsoletus*.  
 Dotted Canyon Wren. *Catherpes mexicanus punctulatus*. With full-fledged young.  
 Western House Wren. *Troglodytes aedon parkmani*. Nests found with eggs and with young.  
 Slender-billed Nuthatch. *Sitta carolinensis aculeata*. Several seen. Found breeding here in 1913.  
 Bailey Mountain Chickadee. *Penthestes gambeli baileyae*. Breeding.  
 Pallid Wren-tit. *Chamaea fasciata henshawi*. Breeding.  
 Western Bluebird. *Sialia mexicana occidentalis*. Nests found with eggs and with young.

Los Angeles, California, July 4, 1914.

## A STUDY OF THE STATUS OF CERTAIN ISLAND FORMS OF THE GENUS *SALPINCTES*

By H. S. SWARTH

(Contribution from the Museum of Vertebrate Zoology of the University of California)

OF SCARCELY less interest than those susceptible types of animals which, covering a vast expanse of territory, show wide variation in response to the difference in surroundings at different points, are the forms occasionally observed, just as wide ranging, and over a similarly varied region, but still remaining uniform in appearance over most or all of their habitat. Perhaps as striking an example of the latter class as exists in North America is the Rock Wren (*Salpinctes obsoletus*), the unyielding nature of whose characteristics is in strong contrast to the adaptability shown by other members of the same family of somewhat similar distribution, *Thyromanes* for instance.

The present study, begun by the writer partly at the instance of Mr. Grinnell, to ascertain, if possible, the true status of certain series from the Santa Barbara Islands, is based mainly upon the collection of *Salpinctes* contained in the Museum of Vertebrate Zoology of the University of California. In addition to these specimens there were available the series from the Grinnell, Morcom, and Swarth collections, on deposit in the same institution; and also the collections of F. S. Daggett, and of George Willett, in the Los Angeles Museum of History, Science, and Art. The Grinnell, Daggett, and Willett collections contain large suites of skins from the Santa Barbara Islands. Of exceptional value and interest is a series of twenty-five skins kindly loaned me by Mr. John E. Thayer, containing birds from certain of the islands, including topotypes of *S. obsoletus pulverius* in newly acquired autumnal plumage. Much of the other island material available consists of spring and summer specimens, more or less worn and faded, and these fresh fall specimens give opportunity for comparisons not possible before. I wish here to express my appreciation and gratitude to those persons concerned for the privilege of assembling and studying the material from the above mentioned collections.

Perhaps the one feature brought most strongly to the writer's attention is, as mentioned above, the indifference shown by the species *Salpinctes obsoletus* to conditions forming absolute barriers to many other animals. It is true that our knowledge of the genus *Salpinctes* is rather unevenly distributed. By the latest authority on the group (Ridgway, 1904, pp. 643-653) it is regarded as composed of four species, one of these being divided into six subspecies, three mainland and three island forms. Of all these divisions of the genus, one subspecies, *S. obsoletus obsoletus*, is fairly well known, while it is probably safe to say that none of the others is thoroughly understood. It is evident, however, that taking the distribution of the genus as a whole, extending from Central America over western North America to southern Canada, it is only at the southern limits of the range that there is any tendency toward a separation into well differentiated forms. Here, in a relatively restricted and unvaried portion of America, occur four recognizable forms, as contrasted with the one (*S. obsoletus obsoletus*) ranging over that part of the North American mainland which comprises about three-fourths of the habitat of the entire genus.

Study of the range of the North American Rock Wren (*S. o. obsoletus*)

reveals such an utter disregard of practically all of the various barriers serving as checks to most other animals, that one is rather at a loss to distinguish the factor or factors that finally limit its dispersal. Temperature and humidity, usually of prime importance, seem here, at first glance at least, to be without their customary potency. Rock Wrens are found from the floor of the hottest desert to the summit of the coldest mountain top; while as strong a contrast is afforded by the aridity of these same deserts compared with the various islands on which the wrens are also abundant. The infinite variety of environment which throughout western North America has produced such marked results upon many of the animals of the region, is without visible effect upon this unyielding organism, although over much of the country the birds are evidently non-migratory, a habit of life generally favorable to the production of variations. However, there is probable significance in the fact that the eastern limit of the Rock Wren in North America approximately corresponds with the eastern boundaries of the arid division of the Austral Zones, the main habitat of the species; so that it seems safe to say that it is the increasing humidity eastwards that finally acts as a check in this direction. The assumption is borne out by the fact that there is no marked change in the topography of the country at this point. The species covers a part of the Great Plains region but does not extend over the whole of it.

In local distribution, however, it seems apparent that features of environment other than the variations in temperature or humidity encountered determine the boundaries. The relatively great difference in humidity between the Colorado Desert and the Pacific slope of southern California, for example, obviously is of no effect. The feature essential to the presence of the Rock Wren is open, unforested country. Furthermore, open plains, uniformly grass-covered, will not answer. There must be areas of bare rock, the steep walls of gulches or creeks, precipitous cliffs, or other similar surroundings. These provided, and there evidently are not in the part of North America occupied by this bird, variations of temperature or humidity, from valley to mountain, or from desert to ocean, sufficient either to check its distribution or to obviously modify its appearance.

Though the species is found over so much of western North America, it is useless to look for it amid forested country, and it is not frequently found in even moderately dense chaparral. Its northward dispersal along the Pacific coast is evidently stopped by the forests of the region.

The islands off the coast of California and Lower California offer, in their barren and generally unforested condition, surroundings evidently highly favorable to the Rock Wren, and the species has found its way to every one. Here, if anywhere, it would seem that variations from the general type should appear, for the birds are isolated on each of the islands, while the species is flourishing on all of them. This isolation in most cases, however, has had so far hardly any perceptible effect, and while there is apparently a slight general tendency of island birds toward the development of at least one feature, there are specimens at hand from each of the California islands which are not to be distinguished with certainty from the mainland form.

Some years ago an insular form was described by Grinnell (1898, p. 238), *Salpinctes obsoletus pulverius*, from San Nicolas Island. Its habitat was regarded as confined to San Nicolas Island, but in a later publication the describer (Grinnell, 1902, p. 68) extended its range to San Clemente Island also. This race was founded upon characters of structure and coloration, and

though at least one writer (Willett, 1912, p. 101) has questioned its distinctness, it has received quite general recognition as a valid race. The subspecies was described from very worn adults, collected in May, no birds in fresh autumnal plumage being available. This want has now been filled by the loan of four September specimens from the Thayer collection, and I have consequently been able to make more satisfactory comparisons of island and mainland birds than has been done heretofore.

The characters of *S. o. pulverius* as given by Grinnell (l. c.), consist, as compared with *S. o. obsoletus*, of notably greater size of bill and feet, and peculiarly yellowish coloration; as given by Ridgway (1904, p. 649), of "larger and relatively stouter bill and much paler, more buffy coloration."

First, as regards the supposed color differences: Grinnell (l. c.) remarks that the "yellowish coloration may be due in part to the bleaching and abrasion of the plumage, but the character is, nevertheless, quite apparent when compared with mainland specimens in correspondingly worn plumage." The ochraceous suffusion remarked upon is truly a conspicuous feature of San Nicolas Island birds in abraded summer plumage, and it is not apparent in any similarly worn examples from the neighboring mainland, but nevertheless it is merely an adventitious acquisition, and one that can *not* be regarded as a specific character. This despite the fact that it could probably be safely used in distinguishing midsummer birds! In a similar manner four of the five adults of *guadeloupensis* at hand, collected in May, are more or less discolored with a reddish suffusion over the entire plumage. This also, it is safe to say, is the result of some peculiarity in surroundings acting directly upon the feathers, and not to be considered as an inherent character of the species.

Four September specimens and one January bird from San Nicolas Island have been carefully compared with corresponding mainland specimens, and I am unable to distinguish the slightest significant difference in color or pattern. Shade and markings of back, breast, flanks, under tail coverts, etc., have been considered separately, and while there is great variation in all these features among birds from any region, I can find no tendency among the San Nicolas Island specimens toward the development of any distinctive color character.

Second, as regards differences of size: As shown in the accompanying table of measurements, *S. o. pulverius* as compared with the mainland *S. o. obsoletus*, has a slightly greater average length of culmen. This difference in culmen length is, I believe, somewhat greater than appears in these tables, especially as regards the females, where, according to the figures, it is not very well marked. Of the six females used in the measurements, four were collected in September. They are in fresh winter plumage, but whether they are adults, a year or more old, or immatures of the previous spring, was not noted by the collector, and there is not now, of course, any way of telling. To ascertain something of the variation by age I measured a small series of mainland birds in first winter plumage, the age determined by condition of the skull, and found the length of culmen appreciably less than in others unquestionably adult. In September collecting many more immatures than adults are taken, and it may well be that most or all of the San Nicolas Island September birds at hand are immatures in first winter plumage. Thus, invaluable as they are for color comparisons, it is possible that these specimens are not to be relied upon to show the true character of the race as regards length of



culmen. No mainland bird was found with length of culmen equal to the maximum of San Nicolas Island specimens.

Twenty-two examples of *pulverius* in juvenal plumage are quite indistinguishable from young birds from the mainland. There is not the slightest tendency toward the development of any differential features at this stage, such as are so conspicuous in the young *Salpinctes guadeloupensis*.

To sum up, it seems apparent that the only distinctive feature of the San Nicolas Island Rock Wren is the slightly greater average length of culmen. In neither adults nor young are there any characters of color or markings not included in the range of variation found in the mainland bird. It seems advisable to recognize the slight size difference shown in the island series by the use of a separate name, *pulverius*, as has been done, but the name should be restricted to the birds from San Nicolas Island. Specimens at hand from others of the Santa Barbara Islands in every respect fall within the range of variation of *S. obsoletus obsoletus*.

In the spring of 1912 Mr. George Willett made a small collection of birds on certain of the islands off the coast of northwestern Lower California. These form part of his collection now on deposit at the Los Angeles Museum of History, Science and Art. Among the specimens collected on this trip is a single adult Rock Wren from San Martin Island; and it is rather startling to find that this bird is radically different in appearance from the mainland *Salpinctes obsoletus*, and but slightly distinguished from *S. guadeloupensis*. This wren I propose to call:

***Salpinctes guadeloupensis proximus*, new subspecies**

**San Martin Island Rock Wren**

*Type*.—Adult male; San Martin Island, Lower California; April 10, 1912; collected by George Willett; original number 1150.

*Characters*.—In coloration most nearly like *S. guadeloupensis guadeloupensis*. Dark brown, as in that race, and with the back rather heavily barred. The most apparent color difference between the forms is that in *proximus* the outer webs of the tertials, secondaries, and some of the primaries, are rather conspicuously barred, as in some examples of *obsoletus*, while in the five adults at hand from Guadalupe Island, they are almost or quite uniform. As regards measurements, *proximus* has the long, heavy bill of *guadeloupensis*. It has not the relatively short wing and tail of the latter race, but in these measurements is more nearly like the mainland form.

*Remarks*.—It is not without reluctance that I have decided to attach a name to this supposed island race, for I am aware of the objections that might be made to such a course. San Martin is only about six miles from the mainland. It is of small size, its area comprising but a few square miles, and it is at a comparatively remote distance from Guadalupe. However, similar apparent anomalies in distribution are known among other animals of insular distribution on the Pacific coast of North America; and, conceding the peculiarities of range and the limited material available, this single specimen still hardly admits of any other treatment. Its characteristics are absolutely unlike *S. obsoletus*, and point as definitely toward *guadeloupensis* in affinities. This is the more striking in consideration of the uniformly *obsoletus*-like character of the Rock Wrens of other islands, some near and some remote from San Martin.

It may be urged that it is sufficient to point out the peculiarities of such a specimen, without attaching a new name to it, but it is doubtful if such procedure emphasizes the case sufficiently. In depending upon research and collecting in the future it is far more likely that a definite "type locality"

will attract attention, than that a statement of probable affinities will be remembered from one out of a mass of papers.

Although it is of course a matter of regret that there is but one specimen of this island subspecies at hand, I believe that the appearance of this single bird justifies the naming of the race to which it belongs. Although there is great variation shown in series of *Salpinctes obsoletus*, both as regards shades of gray or brown, and character of spots, bars, or streaks, on various parts of the plumage, this specimen stands absolutely outside of this range of variation, so that I do not believe that there is any question of its belonging to this species. From *guadeloupensis* it is not so readily distinguished, at least as regards color, but the measurements lie outside the limits reached by that form. As in its variation from typical *guadeloupensis* there is an apparent approach toward the characters of *obsoletus*, it might be considered as illustrating intergradation between the two, but for the present at least, in view of the many peculiarities of distribution observed in the genus, it seems best to consider *obsoletus* and *guadeloupensis* as distinct species.

We are probably safe in assuming that the Rock Wrens of all the islands off the coast of California, as well as those of most of the Lower California islands, are derived from the mainland form *Salpinctes obsoletus*. In fact, in most cases they are not to be distinguished, though it does seem to me that in the island birds throughout there is to be detected a slight general tendency toward lengthening of culmen. In the Santa Barbara group this tendency has reached, on San Nicolas, most remote from the mainland, a stage where we are perhaps justified in recognizing the variation in nomenclature, and considering the San Nicolas Rock Wren as a separate subspecies. There is another slightly differentiated island form of *obsoletus*, *S. o. exsul* (not seen by me), from San Benedicto Island, of the Revillagigedo group, off the coast of western Mexico. Of additional island localities there are at hand specimens from most of the Santa Barbara islands, and from the following Lower California islands: The Coronados, San Benito, Cerros and Ildefonso. None of these are to be distinguished with certainty from typical *S. obsoletus*.

Thus there is on the mainland coast of California and Lower California, and on most of the adjacent islands, the Rock Wren, *Salpinctes obsoletus*, in its three very slightly distinguished races, *obsoletus*, *pulverius* and *exsul*. In the midst of this general range there is found on two islands, Guadalupe and San Martin, a sharply differentiated form, *Salpinctes guadeloupensis*, apparently divided into two races, *guadeloupensis* and *proximus*. Bearing in mind the above facts as regards distribution, and also the degree and kinds of difference distinguishing the forms, it seems to me that in the light of our present limited knowledge of the subject, it is best to regard *Salpinctes obsoletus* and *S. guadeloupensis*, as distinct species, the first composed of several, the second of two, different forms or subspecies. In other words, it is the treatment accorded these forms in the A. O. U. *Check-List* (1910, p. 336) that seems to me the more reasonable, rather than the view expressed by Ridgway (1904, pp. 643-653) in his recent study of the group. At the same time recognition must be accorded the possible significance of the peculiar juvenal plumage of *Salpinctes obsoletus notius* (not seen by me). In this Mexican form the young is described by Ridgway (1904, p. 648, footnote) as being similar to the corresponding stage of *guadeloupensis*, and this may be an indication of close relationship between these two forms, though the geographical position of *notius* adds no emphasis to such a theory. The

southern Mexican and Central American forms of this genus are so imperfectly known and understood, however, that any general treatment of the genus must be at this time regarded as tentative, and for the present it seems best to consider *obsoletus* and *guadeloupensis* as specifically distinct.

*Specimens examined.*—*Salpinctes o. obsoletus*: Nevada, 22; Arizona, 18; Oregon, 1. Mainland of California: Modoc County, 17; Amador County, 1; El Dorado County, 1; Alameda County, 2; Tehama County, 2; Kern County, 9; Tulare County, 2; Fresno County, 1; Ventura County, 2; Los Angeles County, 46; San Bernardino County, 30; Riverside County, 13; San Diego County, 1; Colorado River between Needles and Yuma, 9. Island localities: San Clemente Island, 4; Santa Catalina Island, 2; Santa Barbara Island, 8; Santa Cruz Island, 6; San Miguel Island, 2; Coronado Islands, Lower California, 5; San Benito Island, Lower California, 1; Cerros Island, Lower California, 1; Ildelfonso Island, Lower California (east coast), 6. *Salpinctes o. pulverius*: San Nicolas Island, California, 34 (12 adults, 22 juveniles). *Salpinctes g. guadeloupensis*: Guadalupe Island, Lower California, 6 (5 adults, 1 juvenile). *Salpinctes g. proximus*: San Martin Island, Lower California, 1 adult. Total number of specimens, 253.

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*Los Angeles, California, July 18, 1914.*

## A SURVEY OF THE BREEDING GROUNDS OF DUCKS IN CALIFORNIA IN 1914

By HAROLD C. BRYANT

WITH NINE PHOTOGRAPHS BY THE AUTHOR

(Contribution from the University of California Museum of Vertebrate Zoology\*)

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\*The field work herein reported upon was made possible through kindly interest on the part of Associate Justice F. W. Henshaw, of San Francisco, and Fish and Game Commissioner M. J. Connell, of Los Angeles. These gentlemen and certain of their friends joined in furnishing the funds needed to defray the contingent expenses.—J. G.

## INTRODUCTION

In connection with a study of the game birds of California now being made by Dr. Joseph Grinnell and the writer under the auspices of the University of California Museum of Vertebrate Zoology, the opportunity was taken the past spring to investigate the more important breeding grounds of ducks within the state of California. The purpose of the undertaking was to determine the kinds and numbers of ducks and certain other native game birds nesting within the state and also to obtain all possible knowledge as to the present conditions under which they breed. The limited amount of information upon record as to past conditions shows the importance of securing definite data concerning conditions as they are right now. That this information may be available as needed in the future has been the prime incentive in this work.

The writer and his assistant, Mr. John N. Kendall, left the Museum on May 11, 1914, for Los Baños, Merced County. Here we stayed till May 24 when



Fig. 62. WHERE DUCKS NEST; NEAR LOS BAÑOS, MERCED COUNTY, CALIFORNIA; MAY 18, 1914.

we moved to Live Oak, Sutter County, and spent the 25th near there on the grounds of the Noyes Gun Club. The next three days we studied conditions in the vicinity of the Gridley Gun Club across the line in Butte County. May 29 we left for the Klamath region, arriving at Klamath Falls, Oregon, the same night. The marshes along Link River were investigated on May 30. From here we staged to Merrill, Oregon, and camped the following three days on Colwell's ranch at the mouth of Lost River. On the third of June we moved camp to White Lake, a former town-site about three-quarters of a mile north of the California-Oregon line. On June 6 we drove twenty-two miles around the south end of Lower Klamath Lake to the mouth of Willow Creek near Brownell, Siskiyou County, California. Here we camped until leaving for home on June 10.

We were thus enabled to visit three of the best known breeding grounds of ducks in the state: the vicinity of Los Baños, in the San Joaquin Valley; the vicinity of Gridley, in the Sacramento Valley; and the famed breeding grounds of the Klamath Lake region.

#### LOS BANOS, MERCED COUNTY, CALIFORNIA

Our stay at Los Baños covered a period of nearly two weeks, May 11 to May 24. We were quartered at the club house of the Los Baños Gun Club situated at Gadwall, six miles southeast of Los Baños. Here we were in the heart of the best duck country and found conditions favorable to our work.

Practically all of the land in the vicinity of Los Baños is owned by the Miller and Lux Company. By taking water from the San Joaquin River near Mendota and carrying it northward along the hills in two large canals this company has brought large areas of land under irrigation. All of the sections of land which are at all level have been enclosed in levees and are successively flooded so as to cause a continual growth of grass on which cattle are pastured. About 150,000 head of cattle are pastured on this "swamped land" in the vicinity of Los Baños. The water in flooded fields varies from a few inches to about four feet deep. In the shallower places sedge (*Carex* sp.), rushes (*Juncus* sp.), and salt grass (*Distichlis spicata*) spring up, whereas tules (bulrushes and cattails) grow in the deeper parts. The commonest aquatic plant is the yellow water-weed (*Jussiaea californica*). The higher portions of land which cannot be flooded are covered with Kern greasewood (*Spirostachys occidentalis*). A few sloughs lined with tules carry the surplus water off towards the river.

We find, therefore, that these breeding grounds for ducks and other birds have been made available through the efforts of man to produce pasturage for cattle. The country is especially well suited to those ducks which choose small sedge-covered islets (see fig. 62) or dense clumps of tules in which to nest.

For many years this region has been known as the best of the duck breeding grounds in the state, as well as the best of the loafing grounds for waterfowl during the winter. This has been the region where market hunters have most persistently operated. Its distance from the larger cities has alone prevented its more wide use for gun club preserves. It has also long been the Mecca of those ornithologists and oologists who were most interested in waterfowl. In spite of the activities of such men, however, little has been written as to the results obtained. The best account of the ornithology of this region yet published is to be found in F. M. Chapman's "Camps and Cruises of an Ornithologist" in which an altogether too brief chapter is devoted to "The San Joaquin Valley at Los Baños". This one account affords information as to previous conditions (in 1903) in this locality.

**Anas platyrhynchos.** Mallard. We personally saw but a very few Mallards in the vicinity of Los Baños, though we were told that the species nests in some numbers along the larger sloughs near the river. We discovered no nests, but succeeded in finding two broods of young. On May 12 while crossing a foot bridge across a slough I frightened from a nearby clump of tules a female Mallard with a brood of half-grown young. Some of these dove, while others flopped along the surface of the water. This brood was thought to be at least two weeks old and the eggs must therefore have been laid about the first week in April. A day or two later what was probably part of the same brood was seen in the same locality. On May 18 a female Mallard with a brood of about ten downy young, seven or eight inches long, was noted scurrying across

a bit of open water in a large pond. As soon as the young were securely hidden in a growth of sedge the mother flew over towards us and attempted to distract our attention. Although we searched the patch of sedge carefully we were not able to locate any of the young. Another brood of downy young was reported to us. All of the evidence obtained points to the conclusion that, even so early as the middle of May, many Mallards were already through nesting. The downy young are much like those of the Cinnamon Teal, but can be distinguished by the presence of more yellow on the sides of the head and by the broader bill.

**Dafila acuta.** Pintail. Four nests of the Pintail were examined. One found on a small islet had been destroyed by some animal, for the broken egg shells were found scattered about. Another nest found had been trampled by cattle. On May 22 a Pintail was seen to flush from her nest as an automobile passed by. The nest was situated about twenty yards from the nearest water and but forty feet from the main county road. It was but poorly concealed, being surrounded by salt grass only about six inches high. The nest, contain-



Fig. 63. DOWNY YOUNG OF PINTAIL (*Dafila acuta*); LOS BANOS, MAY 21, 1914.

ing seven fresh eggs, was constructed of short grass stems and sparsely lined with dark-colored down. On returning to this nest on the morning of the 24th we found that some animal had been there before us. Only four whole eggs remained, while broken and empty shells were scattered about (see fig. 70). The fourth nest was reported to us as containing eight fresh eggs on May 23, and as being located in salt grass within fifty feet of the margin of a large pond.

In all, three broods of the Pintail were found in this locality. The first brood was discovered along with the mother in some shallow water near a tule-grown slough. The downy young all at once started for the shelter of the tules, while the mother flopped into the water not more than ten feet away from me and did her best to lead me in another direction. The brood numbered seven or eight individuals about nine inches long though there was considerable variation in size. On May 21 a Pintail with ten downy young was discovered on the bank of a pond. When first disturbed she was brooding her young on dry ground about ten feet from the water. The moment she flew the downy young assumed rigidly the same poses they had variously held be-

neath the mother. Some were standing nearly erect whereas others were crouching, but all were huddled close together. They remained perfectly motionless while, leaving Kendall to watch, I went for the camera. I had gone over a hundred yards before they moved. By the time I returned they had



Fig. 64. NEST OF BLACK-NECKED STILT (*Himantopus mexicanus*): A CRUDE AFFAIR BUILT FLAT ON THE GROUND; LOS BAÑOS, MAY, 1914.

wandered off about ten yards. They marched in single file and every now and then huddled close together posing motionless for a few moments. The mother came within twelve feet of us a number of times. She repeated from time to time a sonorous *quack*; but when we moved to a little distance she approached the ducklings and began calling them with a rapid series of short quacks, to which the young responded by quickly following their mother as she waddled off to the nearest water. Another brood of almost the same age was discovered on the afternoon of the same day, the 21st (see fig. 63). The wind was blowing hard and the mother with her eight downy young had sought the shelter of a bush on the bank of a large pond. She was very solicitous for her young, and in her attempt to lead us away she fluttered along the ground, flew about our heads, or swam in anxious manner in the nearby pond.

The Pintail evidently nests commonly in the vicinity of Los Baños. The almost equal number of sets of fresh eggs and broods of downy young found lead us to conclude that our visit there occurred during the height of the breeding season. The downy young have so little yellow about the head, and the two dark lines on the side of the head are so conspicuous, that there is little trouble in distinguishing them from the downy young of the Mallard or Cinnamon Teal. Like the young of the Mallard the young Pintail is an expert diver. Two kept for a time in captivity were very fond of house flies and were



Fig. 65. NEST OF BLACK-NECKED STILT: A WELL CONSTRUCTED EXAMPLE, BUILT UP WELL ABOVE SURFACE OF WATER TO ESCAPE FLOODING; LOS BAÑOS, MAY, 1914.

extremely adept in catching the insects as dropped into the cage. The stomachs of the young Pintails examined contained grass and other plant stems, seeds of filaree (*Erodium*) and certain other unidentified seeds in fragments. One stomach contained the remains of the pupa of some insect.

**Chaulelasmus streperus.** Gadwall. Four nests of the Gadwall were found. From one of these the young had already hatched, and one of the others had been raided by some animal, probably a coon. On May 12 a female of this species was flushed from her nest which was situated in tall salt grass about fifteen feet from a small pond and lined with gray down. It contained nine cream-colored eggs. When flushed the duck gave a few quacks, dropped into the nearby pond and, swimming low in the water, quietly departed. Five days later the nest was destroyed by some animal. On a small island grown up with sweet clover and grass the fourth nest was found on May 16. This nest was constructed of the leaves of sweet clover mixed with dark gray down and was well concealed by the high growth. The outside diameter was 21 inches and the inside 16 inches. The nest contained twelve slightly incubated eggs. No downy young were found by us.

Besides the two birds which were flushed from their nests, not more than two or three other Gadwalls were identified with certainty in the field. Hence we must consider this species as comparatively uncommon during the nesting season in this vicinity. The number of nests found did not furnish in this case an adequate criterion of the number of nesting birds of the species. The birds when flushed remind one of Pintails but appear to be of stockier build and much shorter neck. The eggs differ from those of the other ducks found nesting at Los Baños in that they are of a distinct cream color. The stomach of one adult examined contained one carabid beetle and a quantity of grass blades. The stomach contents was very similar to that usually found in the Baldpate.

**Querquedula cyanoptera.** Cinnamon Teal. Twenty-three nests of the Cinnamon Teal were found. Of this number eighteen were destroyed by some predaceous animal, and from three, the young had already hatched. This duck almost invariably chose for nesting sites small islands or the banks of ponds upon which grew either sedge or salt grass. A typical nest found on an islet in a marsh was well concealed in a patch of bunch-grass about a foot high. It was well lined with down in spite of the fact that the eleven eggs were fresh. Two other nests discovered, which were afterward destroyed through some agency, were exactly the opposite in respect to the equipment of down: one containing five eggs held no down as yet, the other containing but one egg showed a moderate lining of down. A nest found in a dense clump of tules at the edge of a pond contained one egg when first found. Four days later the same nest contained five eggs, giving evidence that one egg is laid each day. It is interesting to note that two individuals of the same species will choose such different nesting sites as grassy islands and dense tules, and such different nesting materials as grass and tules. The choice of tules by Cinnamon Teal in the vicinity of Los Baños is certainly the unusual thing.

The inconspicuousness of a nest when covered with its blanket of down was significantly impressed upon us on returning to a nesting site we had previously marked. Although we went directly to the small islet on which the nest was situated and looked carefully for the nest it took several minutes to descry it, and when found it was in exactly the position we had pictured it in our minds. The dusky-hued down of the Cinnamon Teal harmonizes wonder-

fully with the damp black earth on which the nest is most often directly placed.

Four broods of downy young Cinnamon Teal were seen, and a "flopper", about half-grown, which represented another brood, was noted. In no case did the broods number more than eight and most of them numbered six or seven. The downy young look much like those of the Mallard, both species having extensive yellow on the sides of the head. In the specimens of Cinnamon Teal at hand, however, the dark-colored stripes on the sides of the head are not so conspicuous and the stripe between the base of the bill and the eye is indistinct. The bill, too, is narrower. The broods were invariably found along the marshy margins of ponds, these constituting their preferred forage grounds. The stomach of a young one contained parts of one seed which was so ground up that identification was impossible.



Fig. 66. NEST AND EGGS OF PINTAIL (*Dafila acuta*); NEAR PENNINGTON, SUTTER COUNTY, CALIFORNIA; MAY 25, 1914.

The Cinnamon Teal is the commonest duck at Los Baños during the summer. In a three hours walk an average of twenty individuals could be counted. During the period of our stay, by far the greater majority were seen in pairs, and this seems to show that many had not yet begun to nest. In several instances males were observed paying court to females, and in one case a fight between two males was witnessed. Combatants, swimming on the water, would face each other about a foot apart, and make lunges at each other, using both bill and wings as weapons. Occasionally one of the birds would avoid attack by diving, allowing the other to jump completely over him. Cinnamon Teal were the tamest of the ducks found in this vicinity. Occasionally a person could approach within twenty feet of a feeding pair. The male is apparently silent; the female is the one which quacks and is always the first to take alarm and fly.

**Erismatura jamaicensis.** Ruddy Duck. Ruddies were commonly seen in pairs in the deeper sloughs and larger ponds near patches of tules. A nest containing four eggs was found on a small sedge-covered island on the rim of an earth duck blind. The nest was simply a crushed-down place in the sedge, there having been no obvious attempt to make use of building material. There was a very little lining composed of large whitish down-feathers. Very little attempt at concealment could have been made in this case, for the large white eggs were in plain sight when the nest was still eight feet from the observer. A pair of Ruddies was nearly always to be seen near the nesting site. The facts that this species was nearly always seen in pairs and that we found only the one nest, and that one with an incomplete set, led us to believe that the season of nesting with the Ruddy Duck was not yet well under way.

**Dendrocygna bicolor.** Fulvous Tree-duck. One of our most interesting finds was a nest of the Fulvous Tree-duck, discovered on May 12, 1914. The nest was situated on a hummock in the middle of a marsh between two ponds. The nest was a well-woven one of dry sedges placed about six inches above the ground in a tall clump of sedge and weeds. The cavity was about five inches deep and in it lay twelve ashy white eggs. A few days later the nest was raided by some predaceous animal and all the eggs destroyed. On May 18 we discovered a second nest in the same swamp. This one was built about six inches above the water in a small clump of sedge and contained but four eggs. The sedges were arched over the cavity in such a way as to conceal it effectively. Two days later when we visited this nest we found it also raided. The only other nest of this species noted was a new one found on June 23. No attempt had been made at special construction of a nest, the two eggs simply lying in a crushed-down place among tall sedges.

Fulvous Tree-ducks were much more numerous at the end of our stay than at the beginning. The last few days several small flocks were seen and these may very probably have been new arrivals. In a large flooded field several Tree-ducks were flushed but no nests were found. It seems certain that the nesting season for this species had but just begun. Compared with the numbers of Fulvous Tree-ducks seen by the writer in the same locality on July 16, 1912, the numbers summering here now would seem to be less, even considering the fact that many seen in 1912 were young.

The gizzard of an adult Tree-duck taken contained finely triturerated grass and other vegetable matter.

Other ducks.—A pair of ducks swimming about at the edge of some tules in a large pond proved to be Green-winged Teal. The male was a cripple and unable to fly and probably the female was also. This male bird had been feeding on the seeds of sedge (*Carex* sp.). More than one hundred seeds were found in the gizzard.

Redheads (*Marila americana*) are known to nest in some numbers in the vicinity of Los Baños, but we were not successful in locating a nest ourselves. On one large pond surrounded by tules we found on several different occasions seven Redheads, four males and three females. During a morning's trip to some large tule-bordered ponds about twenty Redheads were seen. These birds seemed to be in pairs and there were usually more males than females seen, which led us to think that some of the females might be incubating.

Shovellers (*Spatula clypeata*) were even less common birds than Redheads. Pairs were occasionally seen feeding in shallow, muddy ponds out in the brush, and on one occasion three full-plumaged males were seen disporting themselves

in a little open water near a dense growth of tules. Attempts to locate a nest of this species proved unavailing.

**Fulica americana.** Coot. Next to Black-necked Stilts, Coots were the most numerous nesting birds in the vicinity of Los Baños. A record was kept of the general location of each nest found, material used in construction, and the numbers of eggs. On our arrival May 11 many new nests were found nearing completion. On our departure most of the nests contained eggs. We were therefore led to believe that the nesting season was fully inaugurated by the middle of May. Only five broods of young were noted during our stay at Los Baños, while more than fifty nests were found.

RECORD OF COOT'S NESTS FOUND AT LOS BANOS

Location	Material	Date	Number of eggs
1. In sedge .....	Sedges	May 13	6
2. " " .....	"	" 14	9
3. " " .....	"	" "	9
4. In tules .....	Tules	" "	3
5. In dock weed.....	Sedges	" "	5
6. At edge of tules.....	Tules	" 16	3
7. On aquatic plant.....	Sedges and aquatic plant	" "	5
8. In tules .....	Tules	" "	6
9. In wire grass.....	Sedges	" "	6+1 young
10. On aquatic plant.....	"	" "	4
11. In low tules.....	Tules	" 18	4
12. In tules .....	"	" "	9
13. In sedge .....	Sedges	" "	4 (2 pipped)
14. " " .....	"	" "	8
15. " " .....	"	" "	1 (pippe)
16. " " .....	"	" "	1+others hatched
17. " " .....	"	" "	8
18. " " .....	Tules	" 19	10
19. " " .....	"	" "	8
20. " " .....	"	" "	9
21. In tules .....	Sedges	" "	6
22. In sedge .....	"	" 20	5 (2 pipped) + 1 young
23. " " .....	"	" "	7
24. In tules .....	Tules	" "	2
25. " " .....	"	" "	4
26. " " .....	"	" "	3
27. In sedge and weeds.....	"	" "	8
28. In tules .....	"	" 22	6
29. In sedge .....	Sedges	" "	1
30. " " .....	"	" "	8
31. " " .....	"	" 23	1
32. " " .....	"	" "	8
33. " " .....	"	" "	8
34. " " .....	"	" "	8
35. On aquatic plant.....	"	" "	9
36. In sedge .....	Aquatic plant	" "	1
37. " " .....	Sedges	" "	6
Total .....			37
Number of additional new but empty nests found .....			16
Number of nests with all eggs hatched.....			2
Grand total .....			55

**Plegadis guarauna.** White-faced Glossy Ibis. During our stay large flocks of White-faced Glossy Ibis were seen both feeding and in flight. The numbers appeared to be greater toward the end of our visit. Several of the flocks in which the individuals were counted numbered thirty to forty. From their actions we inferred that they had not yet begun nesting.

**Shore-birds.**—Black-necked Stilts (*Himantopus mexicanus*) were by far the most numerous of all the breeding birds in the vicinity. They nested very commonly on muddy islands in the larger ponds; but nests were also found along the margins of ponds out in the brush as well as in flooded fields. In such places as last indicated the nests had often been built up so as to reach above the surface of the water. It was suggested to me some time ago by Mr. Paul J. Fair that Stilts alone among all the water birds, seem to have sufficient intelligence to increase the height of the nest in order to keep it from being flooded by rising water. Mr. John G. Tyler attests to the same thing. Evidence which we obtained certainly points in this direction. On the banks of ponds and on muddy islands the nests were usually very simple in structure, being a hollow in the ground lined with a few weed stems. Many nests found above water may well have been of this crude structure before the encroachment of the water. When seen by us, however, they were well constructed nests built up to a height of six to ten inches (see figs. 64, 65). It seems quite possible that extra layers of stems could be added to the nest as it and the eggs were threatened with flooding by the rise of the water. Two nests in which the young were just hatching were noted May 21, but all the rest of the nests contained three or four eggs. Fresh eggs were examined on May 22.

**Avocets** (*Recurvirostra americana*) were still more partial to the muddy islands than were the Stilts. The former were present in moderate numbers, and a nest containing three eggs was found on May 23. A downy young one several days old was noted on May 21 swimming in a shallow pond and turning tail up as it tried to reach something on the bottom. Its stomach was found to contain eight or more small water beetles (*Dytiscidae*), 1 Jerusalem cricket (*Stenopelmatus*), 1 larva of a dragon-fly, 1 small bug (*Pentatomidae*), and 1 centipede (*Scolopendra*).

Along the muddy shores of ponds five Snowy Plover (*Aegialitis nivosa*) were seen at different times. Three were noted on May 17. Their light brown backs so harmonize with the color of the muddy shores of ponds that it is impossible to see the birds until they move. The stomach of one contained more than ten water beetles (*Dytiscidae*). These birds were very tame and a photograph was taken at a distance of eighteen feet.

A flock of twenty-six Western Sandpipers (*Ereunetes mauri*) was noted on May 17 and two Northern Phalaropes (*Lobipes lobatus*) on May 19.

**Killdeer** (*Oxyechus vociferus*) nested most commonly on the alkali flats away from the water. When one walked across such stretches as many as ten of these birds could be seen running along ahead or standing "teetering" and incessantly repeating their call. The eggs in one nest found May 15 had been broken on the under side, just as if the weight of the bird, pressing the eggs against the small pebbles forming the floor of the nest, had crushed in the shell. Another nest found on May 15 was unique in the facts that it was placed on a small grassy knoll surrounded by water, and that the cavity was well lined with short stems of devil grass. A downy young one was found May 22.

## GRIDLEY, BUTTE COUNTY, CALIFORNIA

One day, May 25, was spent on the Noyes Gun Club grounds in Sutter County, just west of the Marysville Buttes. The next three days we camped on the grounds of the Gridley Gun Club in Butte County, which joins the Noyes Club on the north. Where Butte Creek enters the Sacramento River bottom it divides into a number of sloughs, and during high water large areas of the adjacent lowlands are flooded. The sloughs are lined with reeds and tules in which Mallards and Shovellers are known to nest. A growth of timber along the creek affords nesting sites formerly occupied, as we were told, by Wood Ducks, while the grass-covered flats near the sloughs furnish nesting sites for Cinnamon Teal and Pintail. Northwest of the Marysville Buttes are extensive mud flats covered with grass. During migrations these flats become loafing grounds for geese, and it is here that geese are said to be seen at the proper seasons in greater numbers than anywhere else in the State. During the late spring and summer these same flats furnish excellent breeding grounds for such ducks, like the Pintail, which nest at some distance from water. Abundant food is to be found in the nearby sloughs and ponds where there is heavy plant growth.

**Anas platyrhynchos.** Mallard. A nest well concealed in tall sedge and found on a small island on May 26 contained one infertile egg and egg-shells from which the young had hatched. A brood of young discovered on the 25th were fully ten inches in length and the primary wing-feathers were just starting. Members of another brood, found on the 27th, were not more than seven inches in length. When diving to escape capture they would often cling to the weeds beneath the surface, and when finally forced to come to the top for air would expose to view the top of the bill only. They tried to escape by simply diving and clinging motionless to weeds more often than they attempted to swim long distances under water.

Mallards were the commonest ducks in the vicinity of Gridley. Most of them were seen in pairs, but not a few lone males were noted. Hatched egg-shells and broods of downy young showed that many of this species were already through nesting. Those seen in pairs were doubtless the latest of the nesters.

**Dafila acuta.** Pintail. While crossing some grassy fields the auto in which we were riding startled a Pintail from her nest situated within two inches of the wheel tracks. The nest was typical, being built of grass and lined with down. It contained ten eggs (see fig. 66). Although we dragged with a rope several acres in the vicinity of this nest we were not able to locate another. A shepherd told us that he had discovered a number of nests to the westward of this place. From the numbers seen the Pintail must be a fairly common nesting duck on the "goose grounds".

**Querquedula cyanoptera.** Cinnamon Teal. In this vicinity I should say that the Cinnamon Teal ranked about third in abundance, the Mallard coming first and the Pintail second. But one nest was found. This contained nine fresh eggs and was situated on the same island on which the Mallard's nest with hatched eggs was found and only about six feet from the latter. The nest was unusually well concealed in tall sedges, there being an arched runway from the water to the nest, the distance being but little more than one foot. There was no down, or other lining.

Other ducks.—A number of Shovellers (*Spatula clypeata*) were seen, but

no nests or young were found although the tules were carefully searched. Fulvous Tree-ducks appeared to be wholly absent. Not a single Ruddy was seen, and no Wood Ducks. Two or three Coot's nests were found, but we did not find this bird nesting abundantly in this locality.

Shore-birds.—Five or six Black-necked Stilts (*Himantopus mexicanus*), which did not act as if they were nesting, one Killdeer, and a small flock of Western Sandpipers, were the only shore-birds seen. Apparently the conditions are nowhere near as ideal in this locality for nesting shore-birds as they are at Los Baños.

#### LINK RIVER, KLAMATH COUNTY, OREGON

Link River is the outlet from Upper Klamath Lake. Extensive tule swamps and marshes line the river for miles. This locality, where we spent but one day, May 30, proved to constitute about the best breeding ground visited

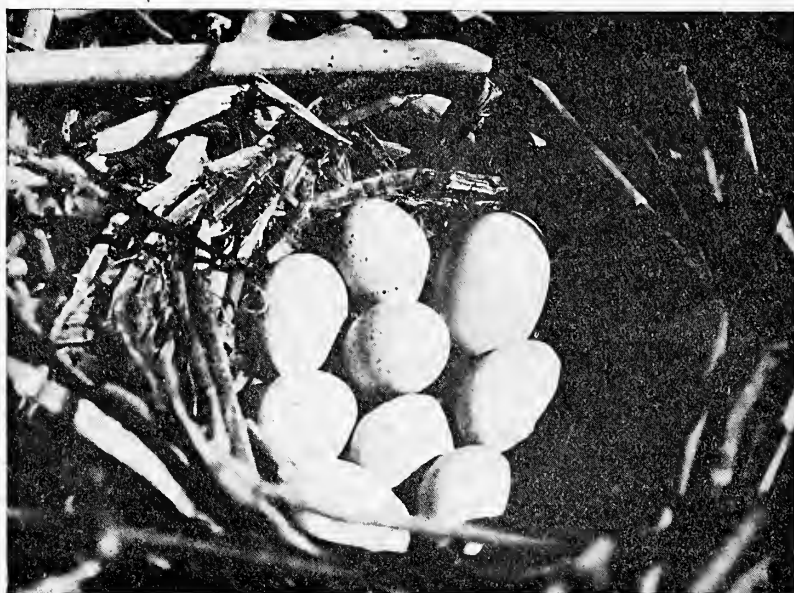


Fig. 67. NEST OF COOT (*Fulica americana*) CONTAINING EIGHT EGGS OF THIS SPECIES AND ONE EGG OF THE REDHEAD (*Marila americana*); TULE LAKE, NEAR MERRILL, KLAMATH COUNTY, OREGON; JUNE 2, 1914.

during the whole trip. In the tule-bordered ponds Mallards, Redheads, and Ruddies were extremely abundant. On one pond alone we counted over seventy-five ducks.

**Anas platyrhynchos.** Mallard. The Mallard was the most abundant duck seen and without doubt the commonest nester. A brood of downy young was met with on May 30 at the margin of a pond. They disappeared so quickly by diving that it was impossible to count them.

**Marila americana.** Redhead. Redheads were far more numerous in this locality than at Los Baños or Gridley. On one small pond a brood of about ten very small downy young were seen swimming along behind their mother. She led them into some tules where they successfully eluded our search for them. In color the small downy young are a dark reddish brown, a character which enables one to distinguish them at a distance.

Shore-birds.—Two or three pairs of Avocets (*Recurvirostra americana*) were seen and one nest was found. This was placed in the middle of a grassy island. Killdeer (*Oxyechus vociferus*) were common nesters in the vicinity, and a man reported that he had seen several downy young. Around one pond were about fifteen Stilts which behaved as though nesting.

#### TULE LAKE, OREGON AND CALIFORNIA

Tule Lake is surrounded by lava beds, and lacks the needed growth of vegetation on its shores to make it a favorable nesting ground for ducks. Along the north shore, near the mouth of Lost River, in Oregon, there is some marsh land and a good growth of tules; but on the other sides of the lake sage-covered lava hills rise abruptly from the water's edge. Even under such circumstances, Mallards are reported to nest, selecting sites out in the sage brush away from water. While in this locality, June 1 to 3, we camped on

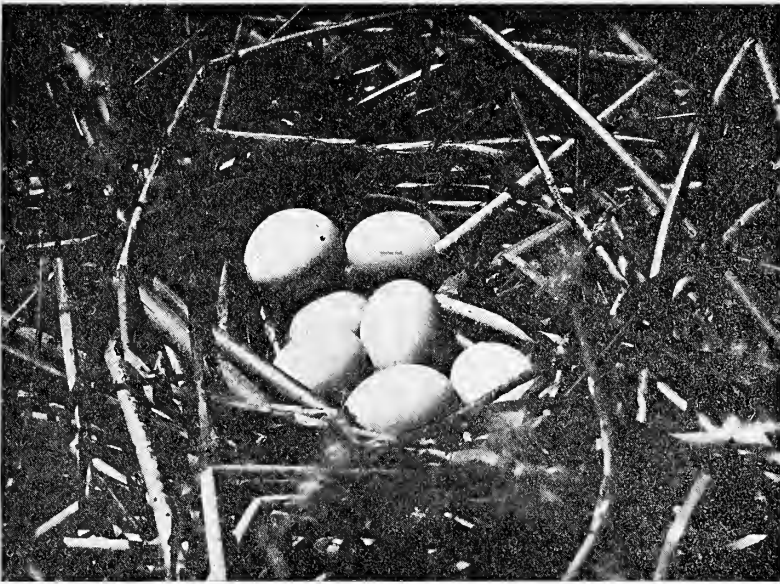


Fig. 68. NEST OF REDHEAD CONTAINING SIX EGGS OF THIS DUCK AND ONE EGG OF THE RUDDY DUCK (*Erismatura jamaicensis*); TULE LAKE, OREGON; JUNE 2, 1914.

Colwell's ranch near Merrill, Oregon, at the mouth of Lost River. From this point we were able to work the north shore in Oregon and the west shore over the line in California.

**Anas platyrhynchos.** Mallard. Numbers of Mallards undoubtedly breed along the northern shore. Several lone males and a few pairs were seen, but no nests or young were found.

**Marila americana.** Redhead. In this vicinity Redheads appeared to be more common than Mallards. Flocks of seven to ten were often observed in open places between the tules. A nest newly constructed of green tules contained no eggs; but several feathers in it were certainly those of a Redhead. On June 2 we found a Coot's nest which contained a set of eight eggs of the Coot and one egg of the Redhead (see fig. 67). On the same day we found a nest of a Redhead with six eggs of this duck and one egg of the Ruddy (see fig. 68). The nest was a platform of dried last-year's bulrushes fixed among

standing rushes about six inches above the water. Some gray down-feathers, larger in size, if anything, than those of the Mallard, were in the nest, but the bird had evidently only started to provide the lining. Additional evidence of the well-known fact that Redheads and Ruddies on occasion lay their eggs in other ducks' nests is thus afforded.

***Querquedula cyanoptera*.** Cinnamon Teal. A few Cinnamon Teal were seen at the head of Tule Lake. A female was flushed from her nest in the middle of a muddy peninsula on June 1. The nest was a depression lined with broken stems of tules mixed with a quantity of down, and was poorly concealed in a sparse growth of weeds. It contained nine eggs.

***Erismatura jamaicensis*.** Ruddy Duck. About eight individual Ruddies were seen during one morning's excursion. A new nest, discovered in a clump of tules where a pair of Ruddies was seen, was thought to pertain to this species. Evidence as to breeding was obtained through the finding of the one egg in the nest of a Redhead, as described above (see fig. 68).

Shore-birds.—Although no nests were found, the actions of Avocets, Stilts and Killdeer showed that they were nesting in the vicinity. Avocets were more abundant than Stilts in this locality. All shore-birds, however, were found in less numbers than at Los Baños.

#### LOWER KLAMATH LAKE, OREGON AND CALIFORNIA

Our camp on White Lake was situated in an old store building at the former town-site of White Lake. This situation was our headquarters from June 3 to 6, and made possible explorations along the western shore of Lower Klamath Lake as well as on White Lake, in both Oregon and California. On the west side of the lake we camped until June 9 on Taylor's ranch at the mouth of Willow Creek, near the town-site of Brownell, Siskiyou County, California. From this point we made a launch trip eight miles north to Bird Island and Sheepie Lake, but we spent most of our time on the freshwater marshes at the mouth of Willow and Cottonwood creeks.

The eastern and western shores of Lower Klamath Lake are very different from one another in character. The eastern is lined with a dense strip of tules that extends into the lake a distance of five or six miles. Ducks were seen flying about over these tule beds and no doubt nest in them, but we found it impossible to search for nests. It was dangerous to wade and the tules were too thick to permit of using a boat. Judging from experience elsewhere, ducks prefer localities where there are frequent open patches of water rather than unbroken stretches of tule growth. A small lake near the eastern shore of Lower Klamath, known as White Lake, is famed as a favorite haunt for ducks during the migrations. Along its eastern shore there are excellent nesting grounds for the ducks which prefer a growth of tules with open water adjacent. As the hills come down to the lake on the southern shore of Lower Klamath, the water is too deep for an extensive growth of tules. The best nesting grounds which we found were on the western side of the lake, in California, where the small streams entering the lake form extensive marshes. The marshes at the mouths of Cottonwood and Willow creeks are due to artificial interference. Excellent conditions are said to obtain at the mouth of Sheepie Creek also. Only a narrow strip of tules fringes the lake on this side except in the vicinity of Bird Island where there are many tule-covered islands separated by channels of open water.

***Anas platyrhynchos*.** Mallard. The Mallard is apparently the common-

est duck nesting on Lower Klamath. One nest on White Lake was situated under a sage bush about twenty-five feet from a canal. It contained twelve eggs on June 6 (see fig. 69). One found in a marsh on Willow Creek, also on June 6, was placed in a bunch of cane grass on a sage-covered knoll. The nest was well lined with down in spite of the fact that it contained but four eggs. A fifth egg had been broken in the nest. The bird was evidently incubating, for she was flushed a number of times from the nest, and in one instance she had partially covered the eggs with down before leaving. Another nest found in this vicinity, June 7, was placed in an exposed position at the south side of a boat house, the nest rim on one side being in contact with the boards. It contained nine eggs and we were told that the nest had been there for about three weeks. Three broods of downy young were seen and one or two half-grown young were noted in the same general locality on two or three differ-

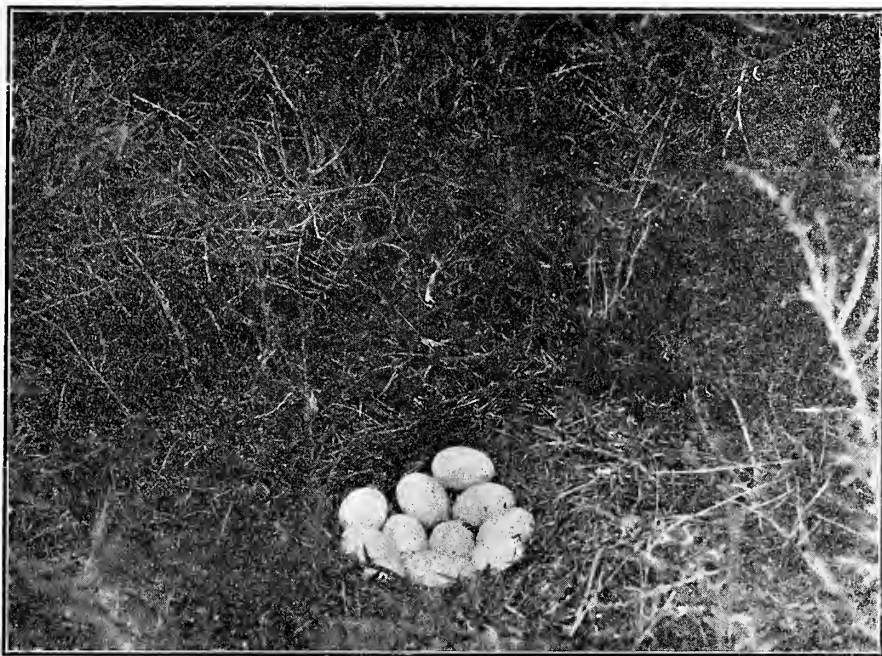


Fig. 69. NEST AND EGGS OF MALLARD (*Anas platyrhynchos*) IN SAGE-BRUSH; WHITE LAKE, NEAR MERRILL, OREGON; JUNE 6, 1914.

ent occasions. Males were more often seen than females. As many as ten males were counted in one flock. Two males noted were already assuming the eclipse plumage. The green feathers of the head had been replaced by brown feathers.

**Marila americana.** Redhead. The east side of Lower Klamath Lake abounds in Redheads. More were seen in this locality than anywhere else on the trip. In one flock alone we counted sixteen individuals. In the vicinity of White Lake, Redheads were more common than Mallards. On the west side of the lake the reverse was true. A female closely followed by a brood of small downy young, seen swimming on White Lake June 5, appeared to be of this species.

**Querquedula cyanoptera.** Cinnamon Teal. A brood of five or six small downy young was seen on a small pond on Willow Creek on June 6. The brood

was accompanied by both the male and the female adults. On nearly every small pond in the vicinity a pair or two of this species was to be noted.

Other ducks.—From observation and evidence obtained from interviews, Shovellers and Ruddies nest in some numbers on Lower Klamath Lake. At the mouth of Willow Creek several male Shovellers were noted and several pairs of Ruddies were seen.

**Branta canadensis canadensis.** Canada Goose. Our first Honker was noted on the east side of Lower Klamath Lake where we startled it from the shore. While driving around the lower end of the lake on June 6 we saw a bunch of at least ten half-grown young. Only one adult was seen with them, but two broods were probably represented. On June 7 two other broods were seen near the mouth of Willow Creek. One contained four young and the other five or six. Ranchers of the vicinity reported that Honkers nest every spring in the tules bordering the lake and that they are the first of the water birds to nest. Reports agreed that fewer geese nested on the lake this spring than in former years.

**Plegadis guarauna.** White-faced Glossy Ibis. On June 4 a flock of five or six White-faced Glossy Ibis was seen flying south over Lower Klamath Lake, crossing the line into California. They were close enough so that I could see the long curved bill, and characteristic sailing with wings set.

**Fulica americana.** Coot. On Lower Klamath, Coots were not as numerous as most of the species of ducks. Less than ten were seen during our whole stay on the lake. On June 9 two or three downy young were noted on a pond at the mouth of Willow Creek.

Shore-birds.—The Wilson Phalarope (*Steganopus tricolor*) was first seen on Link River in Oregon. Later, in the Willow Creek marshes on the west side of Lower Klamath Lake, twenty or thirty birds were observed. On June 8, while crossing a pasture I started up a pair of Wilson Phalaropes from the low sedge. They flew excitedly about my head and soon were joined by four more. After a long search I discovered the nest, which was placed on the ground and was built of sedge stems. The shells of four eggs from which the young had hatched still lay in the nest. Wilson Phalaropes were usually seen in pairs feeding in shallow ponds.

**Gallinago delicata.** Wilson Snipe. Our endeavors to find the nest of a Wilson Snipe proved fruitless. On every trip into the marshes on Willow Creek we saw and heard these Snipe as they went through their aerial gyrations. The birds fly high in the air and their whole body appears to vibrate as they dash downward for fifteen or twenty feet and it is at this time that the weird sound so often described is heard. The few which were flushed from the grass were easily identified by their erratic flight. In almost every instance after being flushed they started on one of their aerial trips. On two occasions they were heard long after dark.

**Oxyechus vociferus.** Killdeer. Near the mouth of Willow Creek a Killdeer's nest was found on the shore of the lake on June 9. It was placed in loose sand near a rock which just showed above the general level of the ground. A small depression sparsely lined with dry sticks formed the nest which held four fresh eggs. Mr. C. H. Glaser, a rancher, reported that while hoeing his garden in the near vicinity of this nest he had a few days before accidentally destroyed another nest containing four eggs. On the east shore of the lake, June 4, we discovered a downy young one not more than one or two days old.

It sought shelter in the sage brush, being able to run very fast in spite of its immaturity.

***Recurvirostra americana*.** Avocet. Avocets were nesting on both sides of the lake, but perhaps most commonly on the east side where muddy peninsulas along the edge of the lake furnished desirable nesting sites. Not a single Stilt was seen on Lower Klamath Lake.

#### NUMBERS OF DUCKS NOW AND FORMERLY

Wherever possible, people resident in the vicinity of the places visited were interviewed with regard to the present status of ducks in each locality as compared with previous conditions. In all instances the evidence so obtained pointed to the fact that the numbers of breeding birds have greatly decreased in the past ten years. Mr. C. H. Glaser, a dependable observer who has been located on the west shore of Lower Klamath Lake for the past fifteen years, says that he has noticed a considerable fluctuation in the numbers of nesting ducks, but that there has been a marked general tendency to decrease. Similar statements were current in the other localities visited. Most of the testimony attributed the decrease of the resident birds largely to the market hunting and excessive shooting formerly carried on during the winter.

#### MARKET HUNTING

Many people in Los Baños formerly hunted ducks for the market and almost everyone in the town is able to tell of remarkable kills. A Mr. Becker, with whom I talked, told of seeing Sischo, a famous market hunter of the region, kill 400 ducks with six shots. Sischo and two assistants worked up within range by using steers—"bull-hunting", this method is called. Two discharges from a number four, double-barrelled, muzzle-loading shotgun were fired by Sischo at the birds while they were resting on the water; then his two assistants, each armed with the same kind of gun, fired four more shots as the birds were rising. Mr. Becker who had started to hunt in the neighborhood at the time, was presented with twenty-two ducks as a reward for not disturbing the quarry while the "sneak" was being made. It was also commonly reported that this same hunter and an assistant killed 198 geese in ten shots, using automatics.

When market hunting was at its height trained steers used in hunting commonly sold for three hundred dollars each. Since the law went into effect prohibiting the use of trained animals in hunting any other game birds excepting geese, the market-hunter attempts to escape apprehension as a "bull-hunter" in the following way. He hitches two horses to a light cart, one of which is to be unhitched and used as a movable blind. The harness is so adjusted that this horse can be instantly hitched up again should anyone be seen approaching.

In past years Sischo kept camps of men who spent their entire time hunting for the market. In order to ship large numbers of birds, exceeding the daily legal bag limit, he is said to have paid men one dollar a day for permission to use their names in shipping. Judging from reports, this one hunter shipped as high as 500 birds a day to the markets in San Francisco.

A talk with a market hunter who lives on the east shore of Lower Klamath Lake brought forth the statement that fifteen years ago it was possible to shoot 150 ducks a day and then pick only the more desirable ones such as Canvasbacks and Mallards. It would be impossible at the present time to make such records, even if the law permitted.

The above instances well show the awful slaughter which accompanies the operations of the market hunter. In addition, market hunters as a class are the most persistent violators of the game laws. This factor in the decrease of ducks can be eliminated by the passage and enforcement of radical non-sale laws.

#### LOCAL DISTRIBUTION OF DUCKS IN CALIFORNIA

The investigation showed a distinct variation in the numbers of the different species of ducks from north to south. Whereas the Mallard was one of the less common nesting ducks at Los Baños, it was the commonest nesting duck in the Klamath region. The Gadwall and Fulvous Tree-duck were found nesting at Los Baños only. The Redhead was found most abundant at Tule and White Lakes. Pintails and Cinnamon Teal were found to nest more commonly in the Sacramento and San Joaquin valleys than in the Klamath region. A difference in the numbers of the various shore-birds was also noted. The following table of censuses taken at the several localities visited will give some idea of the relative abundance of the species of ducks, geese and shore-birds met with. With the ducks, actual counts were made. The numbers of shorebirds are estimates based on memory. The censuses are taken from my notebook, and the circumstance that no birds of a species were recorded as seen does not mean that they did not exist in the region, but simply that they were not seen on the days the counts were made.

COMPARATIVE NUMBERS OF DUCKS, GEESE AND SHOREBIRDS  
AS SHOWN BY TYPICAL CENSUSES

Locality	Mallard	Pintail	Redhead	Gadwall	Cinnamon Teal	Shoveller	Tree-duck	Ruddy Duck	Canada Goose	Killdeer	Avocet	Stilt	Coot
Los Baños, Merced Co., Calif.....	..	..	10	1	19	6	2	4	..	24	2	30	20
Gridley, Butte Co., Calif.....	11	2	..	..	2	2	..	..	..	..	..	6	4
Link River, Klamath Co., Ore.....	40	4	30	..	25	..	..	6	..	10	6	15	1
Tule Lake, Ore. and Calif.....	13	..	17	..	16	2	..	2	..	14	12	..	2
White Lake, Ore. and Calif.....	21	..	28	..	2	..	..	..	..	8	14	..	2
Lower Klamath Lake near Brownell, Siskiyou Co., Calif. ....	40	..	2	..	4	..	..	2	1	6	2	..	2

Some idea of the distribution of nesting ducks as well as their success can be obtained from the following table which lists the number of broods of young of the different species seen at the chief breeding centers.

	Mallard	Pintail	Cinnamon Teal	Redhead	Canada Goose	Coot
Los Baños, Merced Co., Calif.....	2	3	5	..	..	5
Gridley, Butte Co., Calif.....	2	..	..	..	..	..
Klamath Lake region, Ore. and Calif.	5	..	2	1	4	2

In each locality marked preferences were shown among the different species for different types of nesting site. The plant associations represented and the species of ducks nesting in each may be listed as follows:

Grassy or sedge-covered margins of ponds or islands	Gadwall, Cinnamon Tree-duck	Teal, Fulvous
Rush or tule thickets at margins of lakes, ponds or sloughs	Redhead, Mallard, Ruddy, Shoveller	

Grass, grain or alfalfa fields at a distance      Mallard, Pintail, Cinnamon Teal  
from water

Sage or other brush in vicinity of water      Mallard

The same sort of preference for particular associations was noted in connection with the shore-birds. Killdeer almost invariably chose the alkali flats or bare dry ground; Avocets were found to choose muddy or grassy islands or margins of ponds, whereas Stilts almost invariably chose the muddy islands or margins of ponds.

In explanation of this associational distribution I need but quote from Grinnell (Univ. Calif. Publ. Zool., 12, 1914, p. 96): “. . . associational restriction appears to be governed by the following three factors, of relative importance in the order named.

“1. Kind of food supply afforded, with regard to the inherent structural powers of each of the animals concerned to make it available.

“2. Presence of safe breeding-places, adapted to the varying needs of the animals, in other words, depending upon the respective inherent powers of construction, defense and concealment in each species concerned.

“3. Presence of places of temporary refuge for individuals, during day time or night time, or while foraging, when hard pressed by predatory enemies, again correlated with the respective inherent powers of defense and concealment of each species involved.”

#### OUR NATIVE BREEDING STOCK OF DUCKS AS COMPARED WITH THE WINTER SUPPLY OF MIGRATORY DUCKS

The supply of ducks in California is derived from two seasonal categories of birds, one consisting of those which nest wholly to the north of us and come here only in the winter season, and the other, of those which nest here and either remain throughout the year within our borders or go farther south for the winter. Hunters depend at the beginning of the season chiefly upon the supply of native ducks and always maintain that these are the most desirable for the table. Home bred ducks are nearly all grain feeders and so lack the fishy taste so often found among the northern bred ducks. Numbered among the more desirable resident ducks are the Mallard, Pintail, Gadwall, Redhead and Cinnamon Teal. It is only the native contingent which we are in a position to control during the breeding season. The most important time for applying methods of conserving our duck supply therefore falls during spring and summer. It is a well-known fact that so long as game birds are unmolested on their breeding grounds they are best able to withstand a considerable toll each year. It thus becomes extremely desirable that California direct especial attention to the breeding grounds of the ducks which are strictly her own, and over which she exercises control at all seasons. If the native stock could be well conserved there would always be a supply which could be depended upon no matter what became of the winter birds. Our summer birds, too, are those likely to be seen and studied by the summer vacationist and which therefore give most pleasure to those people who do not hunt.

It is pre-eminently the duty of the State to conserve our native ducks, first, because they are highly desirable as food, second, because they are altogether our own and under our control, and third, because our native ducks are the ones available during the most favorable season for esthetic enjoyment by the people of the state.

#### SUCCESS AND FAILURE AMONG NESTING DUCKS

There are many factors which contribute to the success which attends

the nesting duck. Such a factor as weather is beyond our control. Others, such as predaceous animals, the market hunter, and encroachment of agriculture are within our control. At Los Baños we found that predaceous animals were destroying a very large percentage of ducks' nests. The following table will make clear how great the destruction really was.

	Pintail	Gadwall	Cinnamon	Fulvous	Coot	Killdeer
			Teal	Tree-duck		
Undestroyed nests.....	..	1	3	1	47	4
Destroyed nests.....	3	3	18	2	2	1

In one locality where the water had lowered and allowed the approach of animals to what had been sedge-covered islets we found ten destroyed nests as a result of two hours searching. In most cases every egg had been broken into and the contents eaten. Of course the broken egg-shells made these destroyed



Fig. 70. RAIDED NEST OF PINTAIL, THE WORK OF SOME PREDACEOUS MAMMAL; LOS BANOS, MAY 24, 1914.

nests infinitely easier to find, so that the relative number of destroyed and undestroyed nests is doubtless somewhat exaggerated. Nevertheless, it clearly demonstrates the fact that large numbers of nests in this vicinity are destroyed by animals. In no other of the localities visited did we find a single nest which had been raided.

We experienced no difficulty in distinguishing nests destroyed by predaceous animals from those from which the eggs had hatched. In the former case the shells showed plain evidences of having been broken from the outside in, were usually more widely scattered about, and often contained a small part of the contents. Hatched eggs, on the other hand, had been fractured from the inside out and were usually broken up into small pieces or left in halves.

Time and again on returning to a nest to photograph it we were disap-

pointed to find that it had been destroyed. Let me cite several instances. We marked a Cinnamon Teal's nest containing five eggs and a Gadwall's nest containing nine eggs. On returning we found both of them raided and every egg destroyed. A Pintail's nest found one day, when examined the next morning was found to have been raided and all but four eggs destroyed (see fig. 70). On one occasion we found a Cinnamon Teal incubating three eggs, while around the nest there were evidences that several other eggs had been destroyed. On returning to the nest later we found that two other eggs had been removed and the bird had deserted her nest. A Fulvous Tree-duck's nest containing twelve eggs and well concealed on a weed-covered island was raided during our stay and every egg broken.

Our attempts to find out the particular species of animal doing the work proved unavailing. In most instances nests were placed in a growth of grass or sedge where no tracks were discernible. In other cases the soft mud at the bottom of the shallow water did not permit tracks to remain long in evidence. Raccoons were extremely common, and in some places near clumps of tules paths were found where their foot prints were plentiful. The fact that in some cases the animal had to wade through water to reach the nest which we found destroyed, also lends support to the theory that coons were largely responsible for the depredations. A number of weasels were seen during our stay, and coyotes were said to be common. It is possible that these two predaceous animals also took part in the destruction of nests.

Irrigation as practiced at Los Baños is also responsible for the destruction of many nests. Mr. Paul J. Fair, who has worked in this vicinity for some time, told me that he found many inundated nests. In some places the water was clear enough for him to see nests and eggs completely submerged a foot below the surface of the water. Dr. Frank M. Chapman, when visiting this locality in the summer of 1903, found similar conditions. He states: "Evidently the abnormal and sudden rise of the water, as well as the equally unusual fall, prevents many birds from rearing young. I found numbers of flooded nests in May, which had been built when the water was still rising, while disappearance must have been even more disastrous." Water is continually rising or lowering. The rising of the water floods the nests and the lowering allows the approach of predaceous animals to the nesting sites.

Still another factor is found in the large herds of cattle which are pastured here. We found two nests which had been trampled by cattle, and Mr. Fair tells me that he also found several nests which had been destroyed in like manner.

A rather remarkable state of affairs therefore exists in this locality. The nesting grounds were made available by the formation of pasture land out of originally arid plains, and yet the same factor, irrigation, instrumental in creating these excellent grounds, is responsible for the destruction of many nests.

The reclamation, even of swamp land, does not always entirely destroy the nesting grounds of ducks. A letter from Mr. Wm. N. Dirks dated May 18, 1914, records the discovery of two nests of Mallard, one of Pintail and five of Cinnamon Teal. These were uncovered while the grain was being mowed on a ranch at Alvarado, Alameda County, California. On Lower Klamath Lake we were told by a rancher that he had found several Mallard's nests in his rye field earlier in the season. Other ranchers told us that Mallards and Teal commonly nested in grain and alfalfa fields. It is certain, therefore, that some of our ducks adapt themselves to changed conditions.

If the added area of available breeding grounds provided through extended irrigation of land does not remain equal to the area of land rendered unfit for nesting it is evident that our breeding ducks must either adapt themselves to the new conditions or disappear. Not only are ducks strong lovers of their home locality but they are often prevented from taking up new quarters by the concentration of the numbers of their kind elsewhere. Hence it seems reasonable to believe that when nesting grounds are destroyed, and the ducks do not adapt themselves to new conditions, the numbers must certainly decrease. If this be true the need of furnishing safe breeding places for native ducks is imperative.

The Los Baños country is conceded to embrace the best of the breeding grounds of central California. It seems, therefore, that some measures might well be taken to prevent the destruction of nests above noted. A more careful regulation of the water during the height of the breeding season would interfere very little with the pasturage and would save many ducks. The encouragement of trapping might reduce the predaceous animals to such an extent that their depredations would be of little importance. The present prices on skins of fur-bearing animals is sufficient to pay for their capture. Even the hiring of one man to supervise this particular district during the breeding season would doubtless bring excellent returns. He could trap predaceous animals himself, could interest others in doing the same at the proper season, and could no doubt find means of reducing the destruction consequent upon the rise and fall of the water.

Obviously any methods which can be applied during the nesting season and which will insure a greater percentage of successes in rearing young will add just that much more to the annual yield. The visit to the Klamath Lake Bird Reservation clearly demonstrated that it is possible to maintain safe breeding places. I should say that the ducks in this vicinity were at least 75 per cent more successful than those at Los Baños. One of the first things noted on the preserve was the fearlessness of the birds. A person could easily approach within a few yards of them. As the government allows trappers to catch fur-bearing mammals on the Reservation these enemies are kept down to a minimum. Conditions are as near the natural as can be imagined, and the birds apparently profit immensely by this circumstance.

As an object of sport the duck has a value in dollars and cents. By the time the gun-club man pays for his trip, ammunition, entertainment, etc., he usually pays more than two dollars apiece for the ducks he shoots. Add to this value the pleasure the wild duck affords the man who does not shoot and it will be readily seen that a valuation of two dollars a head is not too high. As wild game belongs to the people as a whole, such a valuation emphasizes the importance of the state and federal government taking just as active interest in preserving this as any other natural resource such as forests or water supply. There is no reason why the mature crop of ducks should not be harvested yearly, just as the mature crop of timber is harvested. The same rational view as is accorded the administration of other national resources needs to be applied here. Supervision of natural nesting grounds and even a considerable expenditure of money to secure and maintain additional breeding grounds as game refuges would, therefore, seem to be justified. More study in this direction will doubtless suggest other means by which our supply of native ducks can be increased.

One virtue of the gun club which in a measure offsets excessive shooting

during the open season is that it provides safe breeding grounds for many ducks. Much of the land owned by gun clubs would now be reclaimed and under cultivation had it not been appropriated for private game preserves. It is probable that most of our home birds are reared on the same grounds where they are later shot. This being true, it is incumbent upon the sportsmen of the state and others who shoot to see that excessive hunting does not reduce the supply of native ducks to the danger point. The necessary stock of breeding birds is even more important than available breeding grounds.

The continued reclamation of marsh lands is undoubtedly reducing the available nesting grounds. Nor is there hope that the swamping of land for pasturing cattle, or the forming of reservoirs for the storage of water will keep pace with the destruction of breeding grounds. Shooting during the open season is also yet too severe to allow of maintaining the proper breeding stock of native birds, and only a smaller bag limit will remedy this adverse feature. It is, therefore, imperative that steps be taken to not only provide suitable nesting grounds to take the place of those used up for agricultural purposes but also to cut down the annual toll enough so that we may maintain our native duck supply at a maximum productivity.

*Berkeley, California, July 31, 1914.*

## A METHOD OF CLEANING SKULLS AND DISARTICULATED SKELETONS

By F. HARVEY HOLDEN

(Contribution from the University of California Museum of Vertebrate Zoology)

ALTHOUGH skins of birds and mammals have been preserved by museums and private collectors for many years, the saving of complete skeletons has, to a large extent, been neglected. Anyone engaged in intensive scientific research will realize that it is almost impossible to find representative skeletons in even the larger museums, while the private collector seldom if ever saves this part of his specimens which might prove invaluable if made available for study. Indeed, comprehensive osteological research on recent forms is, except in rare instances, impossible.

It requires no argument to show that this is a deplorable condition. The vertebrate paleontologist is, of necessity, an osteologist; yet his work is curtailed at every point because of the lack of descriptions of Recent material or access to such material itself. In taxonomic studies, also, many questions are unsettled upon which the study of the skeleton would throw important light.

One of the chief reasons for the lack of complete collections of skeletons of existing animals,—as complete as such collections might reasonably be expected to be,—is that it has been found both unpleasant and laborious to prepare the bones in shape for comparison or study. Either maceration has been employed, or the bones have been boiled in a solution of lye; the former requires several months for completion, while the latter process is injurious to the bones, and to the hands of the operator. It is hoped that once the greater part of the unpleasantness and labor has been eliminated, the study of osteology will take the place it should among other branches of zoology.

It is with a desire to aid those persons who are likely to interest themselves in this fascinating study, as well as to furnish an apparently new cleaning formula for museums, that the following description of a process of removing flesh from skulls and disarticulated skeletons, is offered.

During the past four years the process here described has been subjected to continual test, and has been proved free from all the objections raised to maceration or cooking in other solutions. It is impossible to eliminate all odor from dried or drying flesh, but the disagreeable stench from maceration tanks is avoided. The "chalking" of bones, as occurs at times with even the mildest alkali, is also eliminated; and, instead of the solution injuring the hands, it acts as a disinfectant and so prevents infection from the tissues handled. In fact, no objectionable results have been observed.

The speed with which skeletons and skulls may be cleaned is another argument for the adoption of this solution. As high as forty-four skulls (*Peromyscus*) have been completely cleaned in an hour, after the proper treatment, while twenty-five is an average rate. With skeletons of small birds and rodents, from ten to thirty can easily be cleaned in a single hour.

#### SOLUTION I

One part, by bulk, clean phenol or carbolic acid (liquid 90%, commercial)

Three parts clean ammonia (28% commercial)

Ten to fifty parts of clean water (varying in amount according to the degree to which the flesh has dried)

(Make up as needed for immediate use)

#### SOLUTION II

$\frac{1}{4}$ % to  $1\frac{1}{2}$ % solution of hydrogen peroxide (commercial)

*To clean disarticulated skeletons.*—Taking a fresh carcass of a bird or mammal, leave the greater part of the flesh on the bones. Do not remove any of the flesh from ducks, rabbits or smaller animals, but carefully tear away the skin and remove the entrails. This lack of preliminary treatment is advisable because the processes and condyles are less likely to be broken after the meat has become tender. With geese, foxes, or larger animals, it may be found advantageous to remove the larger bodies of muscle, such as those found on the breast of the goose and along the back of the fox; but even in these cases the tongue and eyes should be left in place.

Place the skeleton in Solution I and stew (at almost the boiling point) until the meat is tender and can be detached from the bones readily. As *boiling* drives off the ammonia and phenol, it should be avoided; and even at a more gentle temperature the flesh should be watched and if it is found that the flesh becomes bleached, as a result of the action of carbolic acid alone, more ammonia should be added.

When the skeleton has been thoroughly cooked, pour the solution into another retainer, wash the bones in clear water, and place them on the fire again to simmer. This will remove the greater part of the ammonia and phenol which is in the meat and remove much of the dark color. Now remove most of the meat with the fingers and a scraper and place in Solution II. In this the bones should stew until those that are free from grease are of a clear ivory color. Now complete the cleaning by brushing and scraping, and place in the sun to dry.

With small skeletons of birds and mammals, a great number may be cooked at one time by placing the individual specimens in cloth bags. When this is done the first cleaning may be dispensed with, and it will be found that a

stream of water will clean the bones if they are first placed on a fine-meshed screen.

*Notes.*—Dry flesh requires less cooking than fresh. If practicable, dry before cooking. In shipping undried skeletons dry cornmeal, in quantity, will keep the meat from becoming putrescent.

Sheep, deer, and goat skeletons are so easily cleaned after cooking for considerable time in water alone that no solution should be used.

*Cleaning skulls.*—The individual age of the skulls, as well as the genus, has much to do with the length of time they should be stewed. The skull of an adult *Peromyscus* will not be injured by a process which would disarticulate the skull of a juvenile *Neotoma*. It is necessary, therefore, to group each genus by itself; and in one genus to separate the adults from the juveniles.

The next step should be the removal of the brains. This should always be done in the field while the skull is still fresh, as it can then be done with greatest ease and least danger of injuring the bones. If this has been neglected the skulls should be thoroughly soaked in warmed water and the brains removed with a bent wire or a small scraper (such as is figured in Hornaday's "Taxidermy"). A half ounce "infant rectal" syringe is also very useful. The nozzle should be filed down until it is thin-walled so that it may be inserted in the foramen magnum of a small skull. By holding the barrel of the syringe between the second and third fingers of the right hand, close to the palm, nozzle facing outward, and the ring of the plunger over the first joint of the thumb, one hand can operate the syringe while the other holds the skull under water. Care should be taken when water is forced into the brain-case, or the bones will be wrenched apart. If the brain is thoroughly softened and broken up, the greater part of it can be *sucked out*, instead of being forced out. If this is done there will be no danger of disarticulating the posterior portion of the skull. If the brains are not removed before cooking, they may expand and force the brain-case apart.

If each skull has a heavy, non-soluble tag attached, with the number or identifying mark written thereon with waterproof ink, many skulls may be cooked loose in one container. Higgins' Eternal Ink on *imitation* parchment paper has been used with success. Each group of skulls should be placed in separate, clean, unruined granite-ware or aluminum pots and covered with Solution I. These should be cooked as directed for skeletons, trying several skulls at short intervals to observe progress. As soon as done, wash, cook in water, then in Solution II and finally clean.

All clinging flesh should be removed by using a bone scraper (not too large), a tooth brush (previously dampened to soften it), and the syringe. With the exception of the juvenile skulls, which can not be cooked so long, it will be found that the meat will become so softened as to be readily *sucked off* by using the syringe as directed for the brains.

Some experimenting may be found necessary in adopting this method, but it should not prove difficult to master, as these directions have been used in manuscript form by persons without previous experience or personal instruction.

This process has been employed in the osteological laboratory of the California Museum of Vertebrate Zoology for the past four years, and many thousands of skulls and many hundreds of skeletons have been prepared, all with uniformly satisfactory results.

*University of California, August 7, 1914.*

# THE CONDOR

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Western Ornithology

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Cooper Ornithological Club

J. GRINNELL, Editor, Berkeley, California

HARRY S. SWARTH, Associate Editor

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## EDITORIAL NOTES AND NEWS

The proposition to expand the scope of THE CONDOR, as set forth in our last issue, aroused more interest than we had expected it to do. The straw vote has been responded to at a lively rate, and, as it stood on September 1, is two to one in favor of expansion. However, the tone of expression from the majority voters has been varyingly submissive, permissive or mildly approbatory, while that from the minority comes with vigor, rebuff and even threat of subsequent dire calamity! We had no notion of disrupting our present constituency, even if assured of increment membership to more than offset such defection. Therefore, though regretfully, we hasten to cover with our little scheme, and hereby declare that its consideration in relation to THE CONDOR will be given no further thought by the present Editor. So let our magazine continue on its feathered career unblemished with glint of fur or scales!

The day has come when the collector must take special pains to justify himself in the eyes of the increasingly many who are not inclined to countenance bird-destruction for any purpose whatsoever. Whatever the merits in this extreme attitude, collectors have the situation to face. Undoubtedly the "scientific specimen" argu-

ment is the strongest to be offered. In this connection it does look as though the collector might make more exhaustive use of the birds he kills. To save a well made skin, with accurate color notes, measurements, etc., is good. To save also the stomach, for economic record, is so much more use made of the bird. One long step still farther is to save the skeleton, or whatever portion of it remains when the skin is made up. And this need not now, with a knowledge of lately discovered methods, be the disagreeable, time-consuming task it once was. We would refer the collector to Mr. Holden's valuable article in the present issue, not only for an explanation of the simple processes involved, but for a statement of the urgent scientific need for preserving skeletons of birds.

## PUBLICATIONS REVIEWED

THE BIRDS ON BUENA VISTA LAKE, SOUTHERN CALIFORNIA. By WM. SHORE BAILY. (*Bird Notes*, n s., v, Feb., 1914, pp. 51-57, 2 half-tone ill.; *id.*, Mar., 1914, pp. 79-83, 1 half-tone ill.)

The attention of the reviewer was called to the article here commented upon through Mr. Stone's exhaustive and valuable current index to "Recent Literature" in *The Auk* (vol. 31, July, 1914, p. 427). The reader infers with probable correctness that an English travelling sportsman is here relating some of his experiences abroad, and has dashed down his story with little or no regard for accuracy of form. Severe criticism is deserved on the score of nomenclature alone, for neither the author, nor the editor of *Bird Notes*, has apparently taken the least pains to secure correct determinations. The bird names employed almost throughout the article seem to be taken directly from European literature, just as if California birds had as yet secured no recognition in ornithology. Even so, there are inexcusable blunders in regard to relationships. The nature of the case will be understood from the following selections.

"As the sun rose, revealing my presence in the shadow of land, flocks of Gulls took wing, principally Herring, and Black-backed (identical with our English birds)"; "a few Black-winged Stilts (*Himantopus candidus*) allowed me to get very close"; "Moorhens, mostly in pairs, beat a leisurely retreat"; "a pair of Greenshanks were feeding on a near by mud-bank"; "Bronze Ibis"; "a large flock of small waders" . . . "proved to be Curlew-Sandpipers (*Tringa subarquata*), a little bird I had previously met with in the Isle of Man"; a "mixed flock of Curlew and Whimbrel" . . . included "the Eskimo species (*Numenius borealis*), but the Whimbrels were similar to our European birds"; "Harrier"; "Iceland Falcon"; etc. We are thus presented with about the sort of product a California tourist in Eng-

land might put out, if armed only with our A. O. U. *Check-List*!

From a technical standpoint the publication of the article was a mistake. Historically it might have been of some value, if dates had been given. The vague expression "some few years ago" is hardly sufficient for determining the date of the conditions described. The poor typography and faulty grammar also are annoying.

With all these faults, there yet remain some features which can be commended. It is not difficult, by perusing closely the context, and upon a basis of a knowledge of the species already known to occur on Buena Vista Lake, to interpret nearly every reference with fair confidence into American terminology.

The narrative is interesting and probably very close to the truth as regards the habits and relative numbers of the species encountered. Some life-history notes of decided value are to be dug out of the text here and there by judicious effort. Adequate care in the formalities would have resulted in a distinctly useful product. Unfortunately similar cases are of not rare occurrence nearer home.—J. GRINNELL.

## MINUTES OF COOPER CLUB MEETINGS

### SOUTHERN DIVISION

**JUNE.**—The regular meeting of the Southern Division was held at the Museum of History, Science, and Art, Thursday evening, June 25, 1914. President Law was in the chair, and the following members were present: Mrs. Frances M. Harmon, and Messrs. Colburn, Cookman, Daggett, Huey, Law, Rich, Robertson, Snyder, Stivers, Swarth, Wood, Wyman, and Zahn. Visitors present were Mr. C. O. Reis, and Dr. John G. Sheaffer.

The minutes of the May meeting were read and approved, and the Northern Division minutes for May were also read. New members elected were: Miss Charlotte Bowditch, Santa Barbara, and Dr. Irwin D. Nokes, Los Angeles. A motion was also passed electing to membership those individuals whose names were accepted at the last Northern Division meeting. New names were presented as follows: F. C. Holman, Palo Alto, proposed by Joseph Mailiard; and the following, all proposed by W. Lee Chambers: Harry Harris, Kansas City, Mo.; J. Alden Loring, Owego, N. Y.; Mrs. E. C. T. Miller, Cleveland, O.; Ronald K. Brown, New York; Lionel S. Dear, Fort William, Ontario, Canada; Wm. Purdy Shannon, New York; Jules Labarthe,

Thompson, Nevada; E. S. Cameron, Marsh, Montana; Horace W. Wright, Boston, Mass.

A letter was read from the secretary of the Pacific Division of the American Association for the Advancement of Science, inviting the Southern Division of the Cooper Ornithological Club to participate in a meeting of the Association to be held in San Francisco in August, 1915. Mr. Law was appointed a committee of one, to attend to this matter as well as to any other details arising in connection with the Southern Division's relations to the Association.

A motion was passed authorizing the secretary to supply the secretary of the Pacific Division of the A. A. A. S. with Cooper Club letter-heads, for a circular letter to be sent out by the Association to the members of the Club.

A motion was made and passed, creating a committee on arrangements, to attend to affairs in connection with the Southern Division's participation in the joint A. O. U. and Cooper Club meeting to be held in 1915. Mr. Law was made chairman, he to appoint two others to assist him, their names to be announced at a later date.

Mr. Huey spoke briefly about some of his collecting experiences of the last few weeks, among other things describing certain peculiar conditions observed among the water birds breeding at Buena Vista Lake. Adjourned.—H. S. SWARTH, *Secretary*.

**JULY.**—The regular monthly meeting of the Southern Division was held at the Museum of History, Science, and Art, Los Angeles, Thursday evening, July 30, 1914. President Law was in the chair, and the following members were present: Messrs. Chambers, Colburn, Daggett, Edwards, Nokes, Rich, Robertson, Swarth, Welch, Wood, and Wyman. Mr. F. Barker was a visitor. The minutes of the previous meeting were read and approved, and the Northern Division minutes for June and July were also read. New members were elected as follows: F. C. Holman, Palo Alto; Harry Harris, Kansas City, Missouri; J. Alden Loring, Owego, New York; Mrs. E. C. T. Miller, Berkeley; Ronald K. Brown, New York; Lionel S. Dear, Fort William, Ontario, Canada; Wm. Purdy Shannon, New York; Jules Labarthe, Thompson, Nevada; E. S. Cameron, Marsh, Montana; Horace W. Wright, Boston, Massachusetts. A motion was also passed admitting to membership those individuals elected at the last Northern Division meeting.

The following new names were presented: Carl D. Hegner, Los Angeles, proposed by H. A. Edwards; John G. Sheaffer,

Los Angeles, by H. S. Swarth; Mrs. Edward Gay Butler, Berryville, Virginia, by H. H. Bailey; W. E. Boering, Seattle, Washington, by C. K. Knickerbocker; Robert W. Williams, Takoma Park, Maryland, by T. S. Palmer; Mrs. Marie Andrews Commons, Crystal Bay, Minnesota, by T. S. Roberts; R. Bruce Horsfall, Princeton, New Jersey, by Alex. Walker; Frederick Adam, Tropico, and D. I. Simmons, Los Angeles, both presented by A. E. Colburn; and the following presented by W. Lee Chambers: Mrs. Herbert Brown, Tucson, Arizona; Dr. R. L. Walker, Carnegie, Pennsylvania; George S. Shiras 3rd, Washington, D. C.; C. F. Hodge, Eugene, Oregon; Dr. Winsor M. Tyler, Lexington, Massachusetts; John P. Young, Youngstown, Ohio; Edwin B. Hunt, Washington, D. C.; Horace G. Smith, Denver, Colorado; Fred Barker, Parkers Prairie, Minnesota; and Mrs. Harriet Brown Thornber, Tucson, Arizona.

At the suggestion of Mr. Law the committee on arrangements for the joint American Ornithologists' Union and Cooper Club meeting to be held next year, was increased to five. The personnel of this committee will be announced later by Mr. Law, the chairman.

There was considerable discussion over the suggestion recently submitted by the editor of *THE CONDOR*, that the magazine hereafter publish matter pertaining to other branches of zoology besides ornithology, but no formal action was taken by the Division at this time.

Messrs. Law, Wyman, Colburn, and Nokes displayed a number of beautifully made skins, recently collected, of many local species of birds in the younger stages. Downy young of several species of water birds, and the juvenal plumages of some of the rarer land birds were included. Adjourned.—H. S. SWARTH, *Secretary*.

#### NORTHERN DIVISION

JUNE.—The regular monthly meeting of the Northern Division was held at the Museum of Vertebrate Zoology, Berkeley, California, Thursday evening, June 18, 1914, with President Bryant in the chair and the following members present: Mrs. Grinnell, Messrs. Evermann, Grinnell, J. Mailliard, Storer, W. P. Taylor and Trenor. Messrs. Martens and McDonald were visitors. The minutes of the Northern Division for May were read and approved followed by the reading of the Southern Division minutes for May. The following were elected to membership: Edward E. Armstrong, J. Howard Richey, and Ernest Schaeffle. New

names proposed were as follows: Miss Charlotte Bowditch of Santa Barbara by W. Lee Chambers and Dr. Irwin D. Nokes of Los Angeles by A. E. Colburn.

It was moved, seconded and carried that a committee of three be appointed by the President to consider the proposed constitution of the Pacific Division of the American Association for the Advancement of Science and to report at the July meeting.

A letter from Mr. A. L. Barrows was read asking that the Cooper Club furnish the Pacific Division of the A. A. A. S. with sufficient stationery to send a circular letter to the members of the Club who are not yet members of the American Association offering them membership in the latter association without the necessity of paying the regular \$5.00 initiation fee. The matter was referred to the officers of the Division with power to act.

Dr. H. C. Bryant then addressed the Division on "The Status of California's Duck Population in 1914". The address covered the experiences of Dr. Bryant and his assistant in a recent trip to the more important duck breeding grounds in California and the southern lake region of Oregon. Adjourned.—TRACY I. STORER, *Secretary*.

JULY.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held in Room 101, California Hall, Friday evening, July 17, 1914. The meeting was open to the public.

President Bryant presided and introduced as speaker of the evening, Dr. Walter P. Taylor, Chairman of the Permanent Committee on the Conservation of Wild Life, who spoke on the subject of "Our Vanishing Wild Life". About three hundred persons were present as visitors, the meeting having been extensively advertised. The lecture was illustrated with lantern slides.

A short business session was held at the close of the lecture to consider some applications. Those present were: Messrs. Bryant, Carriger, Evermann, Grinnell, Schaeffle, Storer and Taylor. The following were elected to membership: Miss Charlotte Bowditch and Dr. Irwin D. Nokes. New names were proposed as follows: Dr. George Bird Grinnell, 238 East 15th St., New York City; Enos A. Mills, Longs Peak, Estes Park, Colorado, and Elizabeth J. Worcester (Mrs. Alfred Worcester), Bacon St., Waltham, Mass., all proposed by J. Grinnell; and Miss Minnette MacKay, 2420 Channing Way, Berkeley, California, proposed by Tracy I. Storer.

Adjourned.—TRACY I. STORER, *Secretary*.

**For Sale, Exchange and Want Column.**—In this space members of the Cooper Club are allowed one notice in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. For this department address W. LEE CHAMBERS; *Eagle Rock, Los Angeles County, California*.

**FOR SALE.**—Bendire's *Life Histories*, perfect condition: one volume, original cloth, one-half red russia, marbled top. Very rare; listed everywhere at \$16, or more; Thirteen Dollars, net.—P. B. PEABODY, *Blue Rapids, Kansas*.

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I WANT one copy each of "The Blue Bird", vol. 6, nos. 1 and 2, published at Cincinnati, Ohio; edited by Dr. Eugene Swope.—W. LEE CHAMBERS, *Eagle Rock, Los Angeles County, California*.

**WANTED.**—Living or freshly shot specimens of Screech Owls, or other California owls, for scientific use. Arrangements for permit must be made with the undersigned before taking specimens. Address:—PROFESSOR C. A. KORNOLD, *Department of Zoology, University of California, Berkeley, California*.

**OVERFLOW** list of your duplicates wanted as follows: Random Notes on Nat. Hist. I, 2, 3; II, 12; III, 5, 6, 10, 11. Oregon Naturalist [=Naturalist, Oregon City] I, 12 (Nov.-Dec., 1894). Field and Forest I, 5, 6; II, 5, 6, 7; III, 3, 4, 6, 9, 10, 11, 12. Parts or volumes of these: Amer. Osprey, Ky. Bittern, Canisteo, N. Y.; Canadian Sportsman and Naturalist; Collectors Monthly; Forest and Field, N. Y.; Hawkeye O. & O.; Hoosier Nat.; Hummer; Loon; Maine O. & O.; Naturalist & Tax.; Observer I, 4, and Audubon Magazine II, 2.—DR. BRAISLIN, 556 *Washington Ave., Brooklyn, N. Y.*

**WANTED.**—*Osprey*, Vol. I, no. 2. Will pay any reasonable price for a copy to complete my files. Also want *Auk*, vols. 1 to 6 and 19, and copies of Journ. Me. Orn. Soc., and Bull. Mich. Orn. Club.—DR. T. W. RICHARDS, *U. S. Navy, 1207 19th St., N. W., Washington, D. C.*

**WANTED.**—Nidologist, vol. I, nos. 1, 2, 5, 8; vol. II, 11; *Osprey*, vol. III, 7.—O. WIDMAN, 5105 *Von Versen Ave., St. Louis, Mo.*

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**FOR SALE.**—Twelve-gauge breech-loader, good condition, with 32-ga. auxiliary; some tools and shells. Five Dollars cash, Fifteen Dollars exchange, net.—P. B. PEABODY, *Blue Rapids, Kansas*.

**FOR SALE.**—Nidologist, vol. II, \$1.50; III, \$2.00; IV, \$1.50. All new in parts as issued. This is one of the early publications in which Cooper Club papers were published.—W. LEE CHAMBERS, *Eagle Rock, Los Angeles County, California*.

**WANTED.**—Copies of any of the following publications. Nidologist, vol. 1, no. 2, Oct., 1893; *Osprey*, N. S., 1902, March, April and July; *Oologist*, May and December, 1897, April and September, 1899; *Wilson Bull.*, no. 4, 1894. B. H. SWALES, *Grosse Isle, Mich.*

**WANTED.**—Number 3 of Vol. 1 The Bulletin of the Cooper Ornithological Club; will pay cash, also exchange bird skins for eggs, or eggs for eggs; particularly interested in Eagles' eggs from anywhere.—L. BROOKS, 130 *School St., New Bedford, Mass.*

**WANTED.**—Loomis's *Water Birds of California*, I to V inc. Particularly want no. V. Will pay cash or give good exchange. Also want *Wilson Bulletin*, nos. 1 to 75.—O. P. SILIMAN, *Castroville, Calif.*

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Announcement is made of a plan for the cooperative study of bird migration.

The birds figured in color are the Redpoll, Hoary Redpoll, Purple Finch and Wood Thrush.

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**CONDOR**

**A Magazine of Western  
Ornithology**



Volume XVI November-December, 1914 Number 6



**COOPER ORNITHOLOGICAL CLUB**

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THE CONDOR  
A MAGAZINE OF  
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Volume XVI

November-December, 1914

Number 6

A FORTY-FIVE YEAR HISTORY OF THE SNOWY HERON IN UTAH

By ANTWONET, EDWARD AND A. O. TREGANZA

WITH MAP AND ONE PHOTO BY G. R. WALKER

SIXTY miles north of Salt Lake City, where the Bear River empties into Bear River Bay, an inlet of the Great Salt Lake, thousands upon thousands of acres are covered by a tortuous weaving water web of overflow and spring-run, deviously patterning its surface with mud flat, alkaline bed, grass grown islet, open reach of water—all weft from lake shore to mountain with rank growth of tule and rushes; and so on down the eastern shore of the lake, though somewhat lesser in extent, continue these same marshes, even accompanying the Jordan River to its narrows at the north end of Utah Lake.

In the spring of 1904, through the courtesy and hospitality of Mr. Chas. Knudson of Brigham City, Utah, we were permitted our first knowledge of the great Bear River Marshes. Arriving at his home late in the afternoon, the evening was spent listening to tales of the late sixties and early seventies, when he and his brothers as boys saw the completion of the Central Pacific Railroad, which linked the East with the new West; how, as ardent, inquisitive youths they spent much of their time wandering about this vast expanse of slough, learning little by little the secrets it held. Here they found many species of birds whose home life they studied with eager interest. They had no text book to guide them, but named each in their own vernacular—the Great Blue Heron they called the Blue Crane; the Black-crowned Night Heron, the Squawk; the Snowy Heron, the White Squawk; and the Long-billed Curlew, Willet, Avocet and Black-necked Stilt all went by the name of Snipe. Each spring and fall they noted the myriads of migratory birds passing over these marshes, and love for the feathered life grew deep within them. As the years went by they gradually acquired this land; every alternate section from the railroad, some

school lands from the State, and some by reclamation, until now they possess 10,000 acres of the best feeding and breeding ground for water birds in the inter-mountain country. He also told of a Government man who came out in the early seventies with a survey party to seek some knowledge of the Utah birds; how he paid, what seemed to them, fabulous prices for eggs which they brought to him from marsh and mountain; how he and Mr. James Pett continued collecting specimens which they sent on to this man at Washington. We asked if it were not H. W. Henshaw, and he seemed to feel quite sure that was the name.

The following morning we went by team to the outskirts of the marshes,



Fig. 71. NEST OF THE SNOWY HERON; BEAR RIVER, UTAH, MAY 1, 1910

where Mr. Knudson secured for us a specimen of the "White Squawk" which proved to be the Snowy Heron (*Ardea candidissima*). He also pointed out the approximate location of the rookery where this bird had nested in company with the Great Blue and Black-crowned Night Heron since his first knowledge of the marshes.

Each successive year we noted many of these birds flying about, but our time being limited and the rookery not easy of access, it was not until April 22, 1910, that Edward Treganza reached the colony. Each year since, one or all three of us have visited this heronry endeavoring to ascertain if these birds were increasing. It is opportune to note here, that this information with other

records of Utah breeding birds, we had hoped to complete very soon; but a recent communication from H. W. Carriger containing a just rebuke from Professor Grinnell for withholding these records, has hastened their transcription.

Lest we had forgotten some detail of Mr. Knudson's reminiscences, and in the hope of gathering some new bit of information, Sunday last, August 30, we again visited him to hear anew his story. He told us of the many offers made him for the purchase of these lands, but he had loved and protected the wild-fowl from boy-hood and could not part with them now—only to the Government would he sell, which could offer the birds even more protection by establishing a well guarded preserve. A few years ago a diminished supply of water from the Bear River threatened the destruction of these marshes; but since the construction of an immense power plant, a permanent supply of water is assured, and these wonderful breeding grounds teeming with bird life will remain a heritage to posterity. Since the building of the Lucin Cut-off, which keeps the salt water of the Lake confined to the mouth of the bay, the Bear River is gradually freshening, and the saline matter is slowly being washed out, making it more healthful and affording better food for the birds.

#### FROM DIARY AND FIELD NOTES

Bear River, Utah, April 22, 23, 1910.—Of sixty-four nests counted by Edward Treganza, only a few contained eggs. A single colony found nesting in company with the Great Blue and Black-crowned Night Heron. Here the rushes were solid enough to sustain one's weight. Each year's tules withering, bowed their heads to the water until successive years' growths matted one upon another, undulating in parched yellow waves, the troughs of which the herons chose for their nests. Along the ragged edges where the new, green growth appeared, an occasional nest was found constructed of broken down reeds and rushes woven into a secure platform and resting but a few inches above the water.

Bear River, Utah, May 1, 2, 1910.—G. R. Walker, J. A. Mullen and the Treganzas again visited the Snowy Heron rookery. Nearly all the nests at this date contained full clutches ranging from three to six eggs, four and five being the usual complement. Following are the measurements of four sets taken from this colony.

Set of six	Set of six	Set of five	Set of eight
1.73x1.30	1.71x1.29	1.65x1.36	1.28x1.60
1.71x1.29	1.68x1.26	1.62x1.25	1.27x1.64
1.77x1.30	1.70x1.31	1.65x1.22	1.28x1.66
1.75x1.275	1.73x1.27	1.61x1.235	1.28x1.67
1.72x1.29	1.67x1.27	1.67x1.34	1.31x1.68
1.79x1.22	1.71x1.30		1.31x1.60
			1.29x1.59
			1.25x1.73

The set of eight is exceptionally large, but only one egg gives indication of having been deposited by another bird. Both size and color of this egg shows considerable variation from the others.

Bear River, Utah, April 11, 12, 1911.—Edward Treganza made an effort to reach the rookeries, hoping to secure some Great Blue Heron eggs, and to ascertain if any of the Snowy Heron had arrived; but on the night of April 11 a terrible storm blew up, bringing with it a heavy fall of snow and a sudden plunge downward of the thermometer.

This storm continued, and the cold was so intense that a thin ice formed on the small still pools, making the trip to the rookery impossible. No Snowy Heron were seen, but a few White-faced Glossy Ibis were noted, and in as much as the Snowy Heron precede the Ibis from a week to ten days, it is reasonable to suppose, that they too were somewhere present.

Bear River Marshes, April 23, 1912.—Snowy Heron rookery visited. Many nests completed, but no eggs. Number of birds noted indicated about thirty percent increase.

Black Sloughs, Salt Lake County, May 25, 1912.—Dr. D. More Lindsay and Morton Cheeseman brought us the information that they had found both the Snowy Heron and the White-faced Glossy Ibis breeding at our old stamping grounds in the Black Sloughs; so Edward Treganza immediately set out to ascertain the size of this new colony. About fifty pairs of Snowy Heron and one hundred pairs of Ibis were found nesting together, all the nests being newly constructed in the young tule growth. This is the first record we have of the breeding of this bird south of the Bear River, Boxelder County; for each year since 1903 we have thoroughly worked the marsh country of Salt Lake County, especially that portion traversed by the overflow of the Salt Lake Drainage Canal, and known as the Black Sloughs.

1913.—This year we decided not to disturb the Snowy Heron in either the old or new colony, but three times we went close enough to the rookeries to note a marked increase in numbers.

Bear River, Boxelder County, Utah, May 2, 1914.—This date found us in the marsh country destined for the rookeries. Within half a mile we noted a number of Snowy Herons rise at our right, whereupon we immediately secured a boat and set out to make investigation. We nosed into the dense tule growth to moor our boat, and had just started to break our way. With the first crackle of the reeds, head after head was seen to rise, long cane-like necks stretched up for inquiry, pure white birds, and in close proximity an iridescent black one; the Ibis with their curved bills looking for all the world like quaint old Jews, lacking but spectacles and a skull cap. Another breaking of reeds, and the whole colony rose en masse, a worrying confusion of wings and squawks and dangling legs; and for once we were actually convinced that white was black and black was white, so confounded were Heron and Ibis. This colony covered an area twenty yards wide by one hundred yards long, and contained no less than one hundred and fifty pairs of Snowy Heron, and about one hundred pairs of White-faced Glossy Ibis. All of the Ibis nests and many of the Herons' were under construction, while some of the latter contained four to five fresh eggs. Having traversed this portion of the marsh at least once annually, we were surprised to find this new and larger colony, for previous years it contained only ducks and a very small colony of Black-crowned Night Heron. All the nests were constructed of the growing reeds and rushes. Though quite dense, there was little matted down growth of years previous, thus much resembling the site of Black Sloughs, Salt Lake County.

Bear River Marshes, Boxelder County, May 9, 1914.—This day we were in quest of Long-billed Curlew. Neither old or new heronry was visited, but many birds were seen circling above the marsh.

Bear River Marshes, Boxelder County, May 16, 1914.—The new colony of Ibis and Heron was visited. All the Heron nests now seemed to be occupied by sitting birds on full clutches. No nest was found to contain more than five eggs, while about thirty percent contained only four.

Here is food for thought for all ornithologists, even those who have much wisdom and would theorize on that which was. How long has the Snowy Heron bred in Utah and why is it breeding here? Is it to be traced back to the time when the sun shone hot on the Northland, or during the epoch of old Lake Bonneville, when these birds might easily have followed up from the sea

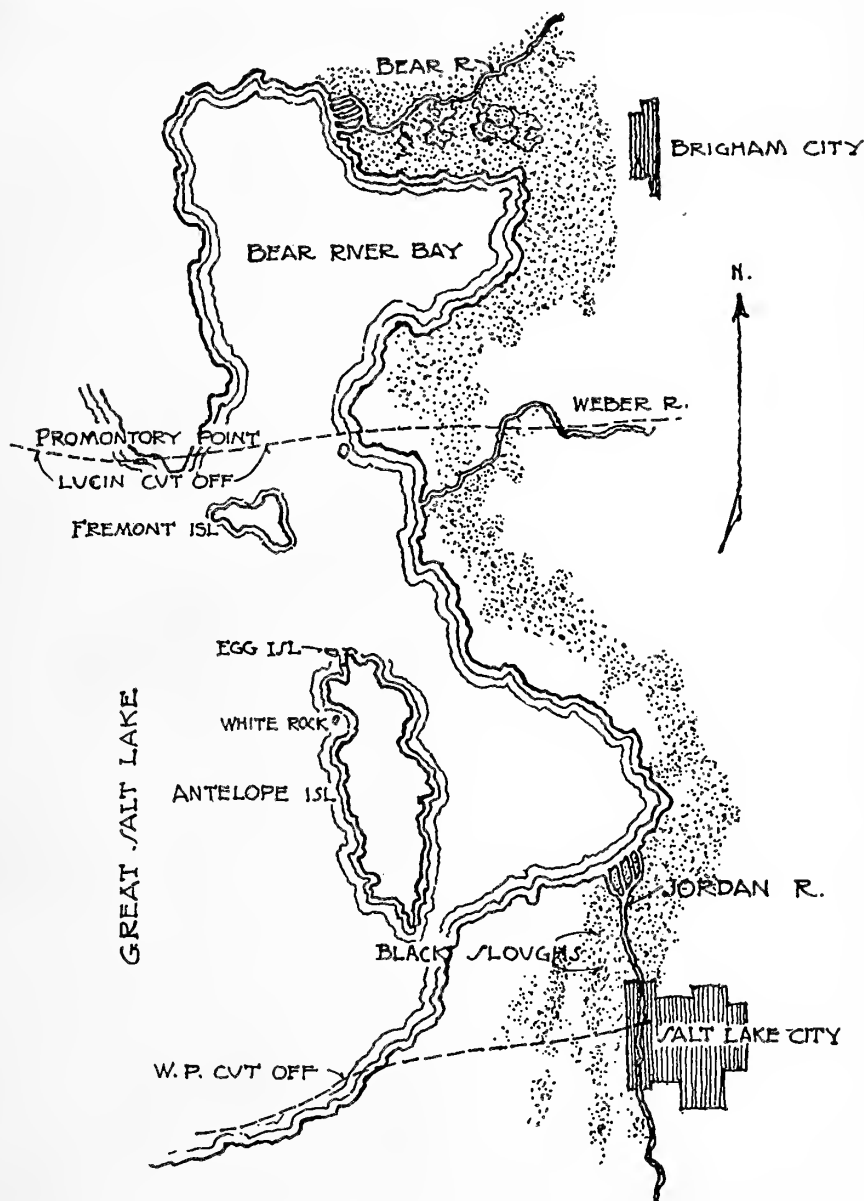


Fig. 72. MEANDERING LINE OF EAST SHORE OF GREAT SALT LAKE AND ITS CONTIGUOUS MARSHES

its connecting arm? Did woman's vanity and vexation of spirit antedate the sixties to such an extent that some small remnant of a colony sought protection in this far north latitude? But theories at best are not facts. That the Snowy Heron breeds in Utah, and has for forty-five years past—the self same

"White Squawk" of Mr. Knudson's boyhood days, which he himself shot in our presence and gave us for identification in 1904, and which specimen we still possess—these are facts.

Then, too, the immensity of undisturbed marsh, affording the best of both feeding and breeding grounds, together with the mild climate of the winters in this Great Basin, where the temperature rarely drops to zero, may offer a justification for its residence here. The birds have increased since our first observations, for annually they are spreading out into new colonies. How much real increase this may mean, we are unable to estimate; for Mr. Knudson tells us that in years past the birds returning each spring fluctuated in number—one spring would find a large colony returned, the following spring only a few pair would occupy the rookery. Is this to be laid at the door of the plume-hunter or did a portion of the birds choose another locality for that year? But the very marked increase since 1904 would indicate that the protection afforded the Snowy Heron here and elsewhere, is having its effect. At our last Legislature a law was passed protecting all bird life in the State, except the Magpie; and the law has not lacked enforcement. Mr. Fred Chambers, State Game Commissioner, with his deputies, and Mr. James Knudson, State and Federal Deputy Warden, have exerted untiring vigilance for the protection of all wild life in Utah.

*Salt Lake City, September 10, 1914.*

## THE EFFECTS OF IRRIGATION ON BIRD LIFE IN THE YAKIMA VALLEY, WASHINGTON

By CLARENCE HAMILTON KENNEDY

THE FOLLOWING article is from observations made while ranching in the Yakima Valley, Washington, during the years from 1909 to 1914. My ranch was an irrigated forty acres, less than ten acres of which was in vineyard and orchard, the remainder being in alfalfa and plow land. The estimates of the number of resident birds in the Yakima Valley are largely based on the numbers which have nested on my forty acres or on land adjoining, which area, though small, was under close and continuous observation for four years. Estimates are not as difficult on an irrigated tract as might seem to an easterner used to the great variety of conditions in a given territory, as on any new irrigation project the conditions are remarkably uniform throughout.

These notes deal only with species resident during nesting time and apply to that part of the valley about thirty miles long and ten miles wide at its widest, which lies between Union Gap and Grandview. Before irrigation, this part of the valley, excepting the narrow strip of verdure along the Yakima River, was a sage brush waste, dotted with sand dunes, and except for an ephemeral spring vegetation following the five to ten inches of winter rainfall, was a true desert.

As its bird population, with the exception of the grouses, now nearly extinct, probably did not differ from that of the sage regions of the valley today, the following list of species resident at the present time in the sage gives us a view of the former bird life in that portion now irrigated.

Columbian Sharp-tailed Grouse. *Pedioecetes phasianellus columbianus*. Formerly common but not seen recently.

Sage Grouse. *Centrocercus urophasianus*. Formerly common but now breeding only in the Rattlesnake Mountains.

Western Mourning Dove. *Zenaidura macroura marginella*. Rarely seen in the sage brush, probably nesting there.

Short-eared Owl *Asio flammeus*. Rarely seen in the sage brush.

Burrowing Owl *Speotyto cunicularia hypogaea*. Common, nesting along the ravines. I believe they will average from four to ten pairs to the square mile.

Say Phoebe. *Sayornis sayus*. Rarely seen in the brush

Dusky Horned Lark. *Otocoris alpestris merrilli*. The most abundant brush species, probably averaging from twenty to forty pairs to the square mile.

Western Meadowlark. *Sturnella neglecta*. The second most abundant species, with perhaps ten or more pairs to the square mile.

Western Vesper Sparrow. *Pooecetes gramineus confinis*. This was not common in the sage area near my ranch, but was numerous east of Sunnyside, where I had little opportunity of observing it. The same applies to the next species.

Brewer Sparrow. *Spizella breweri*.

White-rumped Shrike. *Lanius ludovicianus excubitorides* Occasional.

Sage Thrasher. *Oreoscoptes montanus*. Probably five pairs to the square mile.

This desert area was bounded on the south by the Yakima River, two hundred feet wide normally, but during spring floods spreading over the bottoms to a width of a half mile. The river, in its thickets of roses, elders and sumacs, above which rose the alders and cottonwoods, supported a bird fauna entirely different from that of the desert, and the nucleus from which sprang later the abundant bird life of the irrigated land. The following is a list of the species which nest either on the river banks, in the thickets and trees, or about the ponds left in the river bottoms by retreating high waters.

American Black Tern. *Hydrochelidon nigra surinamensis*.

Cinnamon Teal *Querquedula cyanoptera*.

Shoveller. *Spatula clypeata*.

Great Blue Heron. *Ardea herodias*.

Coot. *Fulica americana*.

Spotted Sandpiper. *Actitis macularius*.

Killdeer. *Oxyechus vociferus*.

Western Mourning Dove. *Zenaidura macroura marginella*.

Marsh Hawk. *Circus hudsonius*.

Sharp-shinned Hawk. *Accipiter velox*.

Western Red-tail *Buteo borealis calurus*.

Sparrow Hawk *Falco sparverius phaloena*.

Belted Kingfisher. *Ceryle alcyon*.

Lewis Woodpecker. *Asyndesmus lewisi*.

Red-shafted Flicker. *Colaptes cafer collaris*.

Western Nighthawk. *Chordeiles virginianus henryi*.

Black-chinned Hummingbird. *Archilochus alexandri*.

Rufous Hummingbird. *Selasphorus rufus*.

Eastern Kingbird. *Tyrannus tyrannus*.

Arkansas Kingbird. *Tyrannus verticalis*.  
 Say Phoebe. *Sayornis sayus*.  
 Magpie. *Pica pica hudsonia*.  
 Black-headed Jay. *Cyanocitta stelleri annectens*(?).  
 Yellow-headed Blackbird. *Xanthocephalus xanthocephalus*.  
 Red-wing Blackbird. *Agelaius phoeniceus*, subspecies?  
 Bullock Oriole. *Icterus bullocki*.  
 Brewer Blackbird. *Euphagus cyanocephalus*.  
 Pale Goldfinch. *Astragalinus tristis pallidus*.  
 Western Savannah Sparrow. *Passerculus sandwichensis alaudinus*.  
 Western Lark Sparrow. *Chondestes grammacus strigatus*.  
 Western Chipping Sparrow. *Spizella passerina arizonae*.  
 Merrill Song Sparrow. *Melospiza melodia merrilli*.  
 Spurred Towhee. *Pipilo maculatus megalonyx*.  
 Lazuli Bunting. *Passerina amoena*.  
 Bank Swallow. *Riparia riparia*.  
 Yellow Warbler. *Dendroica aestiva*.  
 Western Yellow-throat. *Geothlypis trichas occidentalis*.  
 Interior Tule Wren. *Telmatodytes palustris plesius*.  
 Western Robin. *Planesticus migratorius propinquus*.  
 Mountain Bluebird. *Sialia currucoides*.

As already stated, the area under discussion is about thirty miles long and ten wide at its lower end, which, because of its triangular shape, gives an area of about 150 square miles. Of this area 62,000 acres are in alfalfa, plow land, and orchards. Various private companies in the past have attempted to water this area, but the final development has been by the Reclamation Service, whose work, just completed, has extended over the past ten years. As this land came under irrigation the various species of birds adapted to the changed conditions spread out from their former haunts along the Yakima River and took possession of this new territory. A few species from the previous desert have managed to survive, others have retreated into the yet un-irrigated sage, while others have adapted themselves to the new condition with a wonderful increase in numbers.

The figures which I give of the actual number of individuals of each species, are only estimates, and some may be greatly in error; yet they are based largely on four years observation of the species nesting on a definite area under general valley conditions, and are more satisfactory than the rather indefinite adjectives usually used, whose values vary with each observer and each locality.

In the list of species already given as representing the probable desert condition, the following changes have occurred. The two species of grouse, the Dusky Horned Lark, Brewer Sparrow and Sage Thrasher, refusing to live separate from their beloved sage brush, have retreated before the irrigation, and none are now found on the tract. The Burrowing Owl has neither surrendered his territory nor apparently increased in numbers, but still hangs on tenaciously, digging his burrows in the unirrigated knolls and along the dry roadsides. The Short-eared Owl is more abundant than in the dry land, and like the Burrowing Owl nests on the dry knolls. It is very abundant in the fall and winter but the large number is probably made up mostly of immigrants. Say Phoebe, the Western Vesper Sparrow and the White-rumped Shrike have accepted the new conditions and are more often met with than in

the sage brush, but real prosperity has come most markedly to the Mourning Dove and the Meadowlark. Each year for the past three years two pairs of doves have nested on my forty acres, at which rate for the 62,000 acres of the entire tract there would be 6200 doves. This past year four pairs of Meadowlarks nested on my ranch simultaneously, which would indicate for the entire tract 12,400 Meadowlarks.

Among the species previously limited to the river banks and thickets the following have taken advantage of the extended mesophytic condition and have variously profited accordingly. The Killdeer has noisily laid claim to every puddle of waste water, and has taken advantage of every barnyard. Nesting observations indicate a population of about 6000 for the entire tract. The Arkansas Kingbird, without waiting for suitable nesting sites, has temporarily built his nest on the electric poles and hay derricks. Though one of the most conspicuous species, nest data would indicate a total population of not over 1000 individuals. The Eastern Kingbird is about one-tenth as abundant as the Arkansas, and Say Phoebe is less common yet. Bullock Oriole is another species restricted by suitable nesting sites. It does not nest in young orchards, but every poplar windbreak has from one to half a dozen nests. A thousand individuals would be a fair estimate. Of the species of blackbirds found along the river, Brewer is the only one which has spread. It is a common dooryard bird, and with the exception of the robin is the species most friendly to man. It nests in weeds along all the larger ditches, also in colonies in the greasewood along the river, and in bushes and vines about farm houses. It is the third most abundant species, with at least 10,000 individuals. The Song Sparrow is the second most abundant species, running close to the Meadowlark in point of numbers. Because of its peculiar habit of nesting near water, giving it an irregular distribution, its numbers are less easily computed, but there are at least 10,000 on the entire tract. The Bank Swallow has occupied the cuts along the forty miles of main canal with a total number of probably 2000; and the Robin is nesting in the door yards and young orchards, with a total of about 2000 individuals.

The following species are common but have not appeared yet in numbers sufficient to estimate them:—Flicker, Nighthawk, Black-chinned and Rufous Hummingbirds, Say Phoebe, Pale Goldfinch, Western Savannah Sparrow, Western Lark Sparrow, Western Chipping Sparrow, Lazuli Bunting and Mountain Bluebird.

In the lower parts of this irrigated tract many ponds were formed by seepage and waste irrigating water. Their banks were sown by the wind-blown tule seed, making a habitat quickly occupied by the following species:—American Black Tern, Cinnamon Teal, Shoveller Duck, Coot, Marsh Hawk, Yellow-headed Blackbird, Red-winged Blackbird and Interior Tule Wren.

These species, from what I can learn, thrived about these ponds for about ten years, but last winter all the ponds were drained, driving the birds back to their former haunts about the permanent ponds in the river bottoms.

The following species found along the river, except as occasionally foraging over the irrigated land, have remained unaffected by the changed conditions:—Great Blue Heron, Spotted Sandpiper, Sharp-shinned, Red-tailed and Sparrow Hawks, Kingfisher, Magpie, Black-headed Jay, Spurred Towhee, Yellow Warbler and Western Yellowthroat.

The English Sparrow has followed man in, and is now common in the towns. The Ring-necked Pheasant (*Phasianus torquatus*) and the Bob-white

Quail (*Colinus virginianus*) have been introduced as game birds. Both have thrived. The pheasant is very abundant, averaging at least a pair to each twenty acres. The quail are abundant in the river bottoms and are beginning to be common in the higher parts of the tract.

To sum up:—The following species have prospered greatly in the newly irrigated territory:—Killdeer, Mourning Dove, Arkansas Kingbird, Bullock Oriole, Brewer Blackbird, Merrill Song Sparrow, Bank Swallow, Western Robin, Ring-necked Pheasant and Quail.

To get a general idea of the actual increase in numbers of the birds through irrigation, the following table based on the previous estimates is given. The figures, as I have stated at the beginning of the article, are given for what they are worth in an attempt to substitute something more exact for indefinite adjectives.

	Before irrigation	After irrigation
Killdeer .....		6,000
Mourning Dove .....		6,200
Burrowing Owl .....	2,000	2,000
Arkansas Kingbird .....		1,000
Bullock Oriole .....		1,000
Meadowlark .....	2,000	12,400
Brewer Blackbird .....		10,000
Horned Lark .....	8,000	
Song Sparrow .....		10,000
Bank Swallow .....		2,000
Sage Thrasher .....	1,000	
Robin .....		2,000
Pheasant .....		6,200
Quail .....		2,000
Other species .....	10,000	20,000
Total .....	23,000	80,800

All the species common now appear to be beneficial to agriculture with the possible exception of the Sharp-shinned Hawk, which perhaps might be classified with those species benefiting by irrigation, though I do not know that it nests away from the river. It is apparently increasing in numbers and no small bird is safe from its daring evolutions under orchard trees and through thickets.

The Sage Thrashers, as I have described previously in *The Auk*, nest in the sage brush but later bring their young into the irrigated areas where they live largely on small fruit. As these do not go in flocks larger than the family group, and are very local in their habitat, any family that becomes a nuisance can easily be shot out, thereby stopping any further thrasher damages for the season. Robins, if permitted, will usually take the sweet cherry crop, but that crop in this part of the valley is killed four years out of five by the frost, and the slight damage from the Robins is more than made up by the good they do.

One of the potential pests which hangs over the Yakima Valley is the Alfalfa caterpillar (*Eurymus eurytheme*). During my first summer in the valley these were abundant, but not enough so to seriously injure the crop. During the second haying that summer the leaves and litter about the stacks while harvesting the hay were fairly alive with the caterpillars, but since then they have not been so abundant. The Meadowlarks and Pheasants have apparently

increased in numbers, and with the Brewer Blackbirds search every newly cut alfalfa field for insects, and probably keep the caterpillar in check.

The valley fauna is noticeably lacking in the small arboreal insectivorous birds, such as vireos, warblers and chickadees, partly, perhaps, because of the scarcity of arboreal vegetation. All fruit trees have to be conscientiously sprayed.

The changed conditions have not only affected the resident species but have also attracted various winter visitants, the most abundant of which are the Gambel Sparrow (*Zonotrichia l. gambeli*) and, as I noted before, the Short-eared Owl. Various migrants spend several weeks in spring and fall, the most abundant species of which are the Audubon Warbler (*Dendroica auduboni*) and the Pipit (*Anthus rubescens*).

*Palo Alto, California, August 29, 1914.*

## BREEDING OF THE BRONZED COWBIRD IN ARIZONA

By M. FRENCH GILMAN

WITH TWO PHOTOS BY H. T. MURPHY

IN THE CONDOR for September-October, 1909, I recorded the capture at Sacaton, Arizona, of what at the time I believed to be the Red-eyed Cowbird. In the July issue of *The Auk* of that year Mr. S. S. Visser recorded a male taken at Tucson; but in a later number of the same journal he published a correction, stating that it was the Bronzed Cowbird (*Tangavius aeneus aeneus*), the form from northwestern Mexico, instead of the Red-eyed Cowbird (*Tangavius aeneus involucratus*), of Texas and eastern and southern Mexico, as was previously supposed. Soon after my note appeared in THE CONDOR Mr. Wells W. Cooke, of the United States Biological Survey, wrote me to send him a specimen of the female, and he pronounced the bird submitted, sent June 11, 1910, to be *Tangavius a. aeneus*.

The first year that these Cowbirds appeared at Sacaton I saw at least two pairs, and possibly more, and they were mating, so presumably breeding. The year 1910, the first one of the season was seen May 9. On July 12 I found a young one on the ground under a cottonwood tree, just below an inaccessible Bullock Oriole's nest. All that spring from the time the first bird appeared, I had been carefully examining nests of Abert Towhees and Red-wing Blackbirds, thinking perhaps the cowbirds might deposit their eggs therein, as there is some similarity in size and ground color of the eggs of these several species. I examined about fifty of the towhees' nests and about half as many of the red-wings', but without success. The number of cowbirds seen during 1910 was about the same as the year previous.

The year 1911 I was working on the north side of the Gila River about four miles from Sacaton, and did nothing with them that season, though occasionally seeing two or three on the lawns at Sacaton. The next season, 1912, I was located on the north side of the river at an Indian village called Santan, and was in a position to take up the study again. I saw the first Bronzed Cowbird of that season at Sacaton on May 25, and June 5, a male appeared

here at Santan, eating crumbs the children had dropped from their lunch in a shed. He stayed around several days and became quite tame. No others appeared on the north side of the river until September 30, when two males and one female were seen. That season I extended my search and included Bullock Orioles in the list of probable hosts, but with no success.

The year 1913 they appeared earlier, the first being seen on May 5, when a male and two females were in evidence. The 10th of the month two pairs were seen at Santan; at Sacaton a male and three females were noted on May



Fig. 73. NEST OF ARIZONA HOODED ORIOLE CONTAINING TWO EGGS OF THE BRONZED COWBIRD AND FOUR OF THE DWARF COWBIRD

20. A few of the birds were observed here and at Sacaton all through the season, the last, a female, being seen September 18. I examined the nests of about twenty-five Bullock Orioles this season but without success.

I wrote Mr. Cooke asking what birds were hosts for the cowbirds, and he included the Hooded Oriole in the list. So I was ready for the season of 1914. The birds appeared at Sacaton May 9 of this season, and on the 13th they came to Santan. Two males and one female have stayed around the barnyard and the school grounds all the season, and occasionally two other males and a fe-

male are seen with them. They are quite tame and get in the shade of a shed and eat watermelon every day.

When the Bullock Oriole began breeding I went to work to examine all the nests I could find. I looked into twenty-eight but no alien eggs were found. Then the Hooded Orioles began nesting, and while they seem fairly numerous, comparatively few nests are seen and most of them hard to reach.

June 28 I climbed to a nest of the Hooded Oriole about twenty feet from the ground in a big cottonwood tree. The nest could not be reached, but getting directly above it I saw a greenish white egg, and knew the long looked for was found. I used a pocket knife vigorously, cut the big branch off and secured the nest. In it were two eggs of the Bronzed Cowbird and four of the Dwarf Cowbird (*Molothrus ater obscurus*). The nest was typical of the species, and made of fiber from the Washington fan palm (see fig. 73). This was at Sacaton, on the south side of the Gila River. Both eggs of the Bronzed Cowbird had holes picked in them, one showing a little incubation, while the other was nearly fresh. Of the Dwarf Cowbirds' eggs, three were slightly incubated, and the fourth fresh. What became of the oriole's eggs is a problem, as is also the cause of the holes in the Bronzed Cowbirds' eggs. My opinion is that the Dwarf Cowbird that deposited the last egg saw the nest was too full of alien eggs, and so picked holes in those of the other species. If such be the case it would explain why the Bronzed Cowbird does not increase faster, for the Dwarf is very numerous here. As nearly as I can estimate the number of the former species they remain about the same as when I first saw them five years ago. If the oriole picked the holes she showed rank favoritism in saving the Dwarf eggs. Evidently her patience was exhausted, for the eggs were cold when found, and the nest apparently deserted.

At Santan, July 7, I found a Hooded Oriole's nest with four of her own eggs and one of the Bronzed Cowbird. The nest was seventeen feet up in a cottonwood, and built of grass. Incubation was advanced, and one of the Oriole eggs was infertile. Another Hooded Oriole's nest found the same day had three Oriole eggs and one Dwarf Cowbird egg, so the Dwarfs evidently use the Hooded Oriole frequently as host, though I have never found them in Bullock Oriole nests. July 11, not far from the nest with the one Bronzed Cowbird egg, I found another nest of the Hooded Oriole with two legitimate eggs and two of the Bronzed Cowbird, incubation begun. This nest was in a cottonwood tree about fourteen feet from the ground, and built of grass with some horse hair lining (see fig. 74). Two other Hooded Orioles's nests examined this season contained only the owners' eggs.

A few notes on the actions of these birds as observed here may prove of interest. With few exceptions they show no indications of being paired, as do most birds. They are seen singly or in twos or threes of either sex. One day there were four males eating watermelon in the back yard near the door, and two females were out in the barnyard by themselves. Two males have been together in the school grounds much of the time, and nearly always when females are seen they are by themselves. It is not strange that they seek solitude, as the males appear so amatory as to be a nuisance. The courtship antics are interesting. A male will approach to within three feet of his partner, fluff out his feathers, stand up straight and begin to flutter his wings. He increases the speed and violence of the fluttering till he appears in a perfect frenzy, then suddenly springs into the air from three to six feet and slowly descends, body perpendicular, beak thrust against breast and tail thrust forward under the

body. All the while he is furiously beating his wings, the noise being audible sixty yards distant. When he alights, usually about a foot from the female, he approaches her in short grotesque hops, with wings outspread. Sometimes after alighting he starts to approach her, then suddenly jumps into the air about three feet and flies rapidly around her in a circle about fourteen feet in diameter, flying with seemingly rigid wings, and making a loud whirring noise with them. If the birds are near a tree it is encircled by this flight.



Fig. 74. NEST OF ARIZONA HOODED ORIOLE CONTAINING TWO EGGS OF THE BRONZED COWBIRD AND TWO OF THE ORIOLE

One day I noticed two males eating watermelon. After they had had enough they approached each other, and one thrust his beak straight into the air. The other then began vibrating his wings, and went through the courtship formula I have just described. When he alighted from the circular flight the other began fluttering wings, and duplicated the performance. This was done twice by each bird, and I judged they were either practicing or it

was done in rivalry, for the edification of a female under another tree a few yards distant.

I have heard them utter only two notes, the more common being a high-pitched squeak with a decided burr to it, somewhat similar to that of the Dwarf, which latter, however, lacks the burr. The other note, rarely heard, is like the least discordant note of the overture to the Yellow-headed Blackbird's song.

The birds, as stated, stay around the barnyard where they pick up corn and other grains and scraps from the table thrown to the chickens; and they also remain around the school yard, where they eat watermelon set in the shade for birds of all kinds. They are sometimes seen in company with the Dwarf Cowbirds, but they make them stand back when there is refreshment at hand. The Thrashers are about the only birds that do not take a back seat for them at the table, though they seem to observe a sort of truce with the Gila Woodpeckers, and eat from the same slice of melon. Sometimes one, and sometimes the other, gets peevish and ends the truce.

*Sacaton, Arizona, July 26, 1914.*

## FROM FIELD AND STUDY

**Arizona Records.**—The following notes were suggested by the reading of Swarth's recently published "Distributional List of the Birds of Arizona". The records of the Band-tailed Pigeon breeding in the Santa Rita Mountains apparently give an additional breeding station for the species within the state, but with this exception my remarks are mainly directed toward the correction of mistakes, which in one way or another have grown up about records made many years ago.

**Band-tailed Pigeon.** *Columba fasciata*. There apparently are no published statements of the breeding of this bird in the Santa Rita Mountains. Two nests were found by me in this range, in the vicinity of Greaterville, with data as follows. One on July 6, 1884, the nest made of fine twigs, laid across a horizontal fork of a small branch of a pine tree, about twenty feet from the ground. Parent bird seen on the nest. Incubation advanced. The second was found July 18, 1884. It also contained one egg, was placed in an oak tree, twelve feet from the ground, and the parent bird was flushed from the nest. Incubation begun.

In this connection I wish, for the sake of emphasis, to repeat the statement I have already made (CONDOR xv, 1913, p. 129), in regard to an early nest I found in the Laguna Mountains, San Diego County, California, on March 6, 1877. This record was mistakenly applied to Arizona by Bendire (Life Hist. N. Am. Birds, I, 1892, p. 124), giving an erroneous idea of the length of the breeding season in that state. It has, in fact, been cited for that very purpose by Grinnell (CONDOR xv, 1913, p. 32) in his excellent account of the species. As a matter of fact the Band-tailed Pigeon is a late breeder in Arizona, the season when eggs may be found extending approximately from the first of July until toward the end of September. In the hope of correcting a mistake of long standing I may be excused for repeating this statement.

**Baird Sparrow.** *Ammodramus bairdi*. Two specimens collected by myself, one on August 29, the other August 30, 1884, about eight miles north of Sasabe, Sonora, Mexico. These birds were recorded by Brewster (*Auk*, II, 1885, p. 198). Mr. Swarth has not included this record in his "List", perhaps being under the impression that it represents a Mexican locality, but the point of capture was north of the United States-Mexican boundary line, and in Arizona, about seventy miles southwest of Tucson.

**Slate-colored Sparrow.** *Passerella iliaca schistacea*. Three specimens taken by myself on Big Sandy Creek, near Signal, Mohave County, Arizona. A female shot February 6, and two males, February 9, 1880. Brewster's record for Tucson (*Auk*, II, 1885, p. 198) was a mistake, as it referred to one of these birds.—FRANK STEPHENS, *San Diego, California*.

**The Struggle for Existence.**—On the west coast of Florida some of the bays and inlets are famous spawning grounds for mullet, a fish weighing from two to ten pounds. They swim in large schools near the surface, and are a favorite food of the fish hawk, which is not an uncommon bird upon that coast.

One day, on the shore of Sarasota Bay, I was watching a female fish hawk circling above a large school of mullet, swimming so close in that their protruding noses could be plainly seen dimpling the smooth waters of the bay. After a few unsuccessful attempts she dropped with extended talons, seized a fish, and after a distressing struggle, made a low rise and started toward the shore. Her labored flight indicated a heavy burden, and even from a distance it was evident that she had struck an unusually large fish. With manifest effort she tugged at her task with the chances in her favor, when from a high dead stub of a tall pine, a male eagle with rapid flight descended from above and struck the fish hawk in the back so that she was almost capsized in the air, the fish being above her. With rapid beating and fluttering of the wings she righted herself and with increasing effort proceeded on her way. The eagle also righted, and with nervous speed, again rose above his victim and after two small circles with extending neck and outstretched feet, he shot once more down upon his prey. This time the force of the impact completely overturned the hawk, who, beginning to fall, let go the fish, recovered her equilibrium, and made off. The eagle with the swiftness of an arrow struck for the falling mullet and captured it before it struck the water. As he headed for the shore, the first few strokes of the wing disclosed that he had a burden greater than he could bear, for his flight was staggering, the wing beats short and unsteady, and although making efforts to rise, he began slowly to lose elevation. Immediately these conditions became evident, he shrieked out a clear, high whistle, that would put to shame the most popular policeman on the beat. This cry of warning was answered almost instantly by a long, quivering squeak, like that of "a young pig, stuck in a gate", and with a rustle as of a mighty wind, his mate bolting from the forest, swooped down toward her spouse. As they approached each other, the striking comparison in size became manifest; the wide, far-reaching wings, deeper, broader tail, larger body and greater weight of the female were plain to see. Renewing her warning squeal that seemed to be torn from her palpitating throat, she bore down toward him with firm, sure wing, when the male bird dropped the fish and flew away without apparent concern. The female, with a deadly grip, seized the prize, and with a confident, steady and jauntily sustained flight, rose lightly in the air as if to prove her worth, and bore it safely to the nest, now plainly visible in the high crotch of the tallest pine of the forest.—JOHN J. BOYCE, *Berkeley, California.*

**Beautiful Bunting in California.**—Among recent additions to my collection obtained from Dr. J. A. Hornung, of this city, I find what is in all probability a new record for California. During February, 1914, Dr. Hornung spent a few days collecting at Blythe, Riverside County, California, in the valley of the Colorado River, where, at different times he found fifteen or twenty examples of *Passerina versicolor pulchra* feeding on roadside weeds bordering a cotton field. On February 8, he shot a female, and on the 9th he secured a male, both in winter plumage.—FRANK S. DAGGETT, *Museum of History, Science and Art, Los Angeles, California.*

**Notes from Sacaton, Arizona.**—In looking over Swarth's *Distributional List of the Birds of Arizona* I find I have three species not included therein.

Harris Sparrow. *Zonotrichia querula*. A male secured March 16, 1913, from a small flock of Intermediate Sparrows. Identified by W. W. Cooke, and recorded by him in *The Auk*, vol. 31, July, 1914, p. 403.

Sierra Sapsucker. *Sphyrapicus varius daggetti* (*S. ruber ruber* of the A. O. U. Check-List). A female taken February 9, 1910, and a male on October 5, 1910.

Ring-necked Duck. *Aythya collaris*. A male secured February 19, 1910.

There seem to be very few records of the Dwarf Hermit Thrush (*Hylocichla guttata nanus*) from Arizona, but I have taken three of the birds, as follows: A female at Blackwater, ten miles east of Sacaton, on the Gila River, identified by Joseph Grinnell; a female at Agua Caliente about one hundred miles down the Gila River from Sacaton; and a male at Sacaton, September 18, 1910. The one at Blackwater was taken March 7, 1908, and the one at Agua Caliente, April 12, 1909.

February 15, 1910, I secured a Tree Swallow, *Iridoprocne bicolor*, from a small flock that flew about a stream of water during a shower. I have seen two Audubon Caracaras (*Polyborus cheriway*), one on each side of the Gila River, and also the head, wings and tail of one shot at Sacaton by an Indian.

September 4, 1910, I secured a male Anna Hummingbird, *Calypte anna*. Two Rufous Hummingbirds, *Selasphorus rufus*, immature males, were secured the same year, one September 4, the other October 1.—M. FRENCH GILMAN, *Sacaton, Arizona*.

**Migrations of the Gannet.**—If any correspondent would be so good as to inform me of any authenticated occurrence of the Gannet (*Sula bassana*) in any part of the Caribbean Sea, or off the shores of Panama, Venezuela or Columbia, I should be greatly obliged, as information is lacking on the points. The Gannet (*Sula bassana*) is stated to make an annual migration in the winter to the Gulf of Mexico, which is some 2500 miles from its Canadian breeding-places—Bird Rocks and Bonaventure. It has been identified, although not actually obtained, at Trinidad island, lat. 10° 50' N (see *The Field*, April 17, 1897, p. 586), but it must be a very occasional visitant so far south as this, and there is no other notice of it on such a latitude. According to Mr. Beebe it is not uncommon off Vera Cruz (*Bird Lovers in Mexico*, p. 381).—J. H. GURNEY, *Keswick, Norwich, England*.

**New Breeding Records for California.**—Early last spring the services of Mr. Adriaan van Rossem were engaged by my brother and myself for a collecting trip which was to start from Los Angeles, going northerly through Los Angeles County to the Tejon Pass, take in some of the Buena Vista Lake country, then cross the valley past Bakersfield toward the more northeastern part of Kern County, to the South Fork of Kern River. The writer hoped to join the expedition but was compelled by developments to abandon the idea, to his great regret. Tejon Pass was one of the halting places on the itinerary, and there a small number of *Gallinago delicata* were found breeding, making the first nesting record in southern California, or for any part of the state south of the extreme northern portion.

Mr. van Rossem's notes regarding this find are as follows:—(Near Gorman, Tejon Pass, Los Angeles County, California, April 24, 1914) "Wilson's Snipe are fairly common. About a dozen in all were seen. While walking toward one of the Redwing's nests I kicked against a small tussock of grass and flushed a snipe which merely fluttered a few feet and stood watching me. A glance downward revealed the nest, and the bird was promptly 'auxed' for positive identification." This bird is now number 7636, and the set number 4269/4-14, collection of J. & J. W. Mailliard. Incubation was so far advanced as to necessitate drilling out a very large hole, cutting the embryo into small bits with scissors and removing the pieces with forceps. In the center of the bunch of grass above referred to, which was about one foot in diameter and two in height, in a swampy area, the nest was situated, it being "simply a few fine grasses, probably pulled from the stems directly beside the nest, as several bare stalks were noticed."

Other individuals, according to van Rossem's notes, showed indications of anxiety regarding the spots from which they were flushed, and, as no more nests were found, doubtless had young ones hidden nearby.

Another record is that of the Dwarf Cowbird (*Molothrus a. obscurus*) near Buena Vista Lake, where the nest of a Western Gnatcatcher (*Polioptila c. obscura*) was found containing three of the owner's eggs and one of the Dwarf Cowbird, the contrast in size between the two varieties being very marked. This set was taken on May 12, 1914, and is now number 4273/3-1-14, collection of J. & J. W. M.—JOSEPH MAILLIARD, *San Francisco, California*.

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# THE CONDOR

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## EDITORIAL NOTES AND NEWS

A meeting of the Committee on Arrangements for the 1915 Congress of the American Ornithologists' Union in California was held at the residence of Mr. Joseph Mailliard in San Francisco, September 19, 1914, with all members present, and also President A. K. Fisher. Any question of failure in carrying out the original plans, owing to the war or any other cause, was emphatically disclaimed. A plan of publicity was outlined, by which to reach all American students of birds with a view to clearly setting forth the attractions of a western itinerary to include the joint A. O. U.—Cooper Club meeting in San Francisco. For instance, it is proposed to organize several local field excursions, of interest alike to visitors from within our own state, and to those from other states. One of these would include the Farallon Island bird rookeries; another the breeding grounds of ibis, stilt, avocet, and ducks at Los Baños; another the Sierra woodlands at Lake Tahoe. Each of these localities, and others in mind, will by the latter half of May be at their height of attractiveness. The Program Committee is also actively at work. Members of both the Cooper Club and the A. O. U., having in mind the preparation of papers, illustrated or otherwise, should announce their inten-

tions to Prof. Walter K. Fisher, Chairman, Palo Alto, California.

Dr. Harold C. Bryant, Assistant Curator of Birds in the California Museum of Vertebrate Zoology and President of the Northern Division of the Cooper Club, has been placed in charge of the new Bureau of Education just established under the auspices of the California Fish and Game Commission. This bureau will dispense information relating to game by means of correspondence, public illustrated lectures, and by the issuance of bulletins on the status of game. Laws, though necessary, are not so effective for the protection and preservation of game as an enlightened public sentiment. This new move of the Commission is to be heartily commended by all interested in conservation, for it will hasten the day when protective laws enforced by police patrol will be comparatively unnecessary. Bryant's first bulletin, called "California Fish and Game", appeared the last of October. The Bulletin will be sent free upon application to any citizen of California. Dr. Bryant's address continues to be Museum of Vertebrate Zoology, University of California.

Visitors to California the past summer and fall have included an unusual number of the more prominent Eastern bird people. A number of Pacific Coast students had the privilege of meeting or renewing acquaintance with Mr. and Mrs. Vernon Bailey. Mrs. Bailey is, as ever, actively on the lookout for information additional to, or emendatory of, her already standard Handbook of Western Birds. Mr. E. W. Nelson made flying visits to many sections, from Vancouver to Los Angeles. Dr. C. Hart Merriam, as usual of late years, spent a few weeks at his delightful summer place at Lagunitas, Marin County. Dr. A. K. Fisher made a hasty reconnaissance of several western states in connection with the economic work of the United States Biological Survey.

Mr. Tracy I. Storer, Secretary of the Northern Division of the Cooper Ornithological Club, has been appointed to an assistant curatorship of birds in the California Museum of Vertebrate Zoology. His research work will have to do with the study of the game birds of California already under way under the auspices of the Museum.

At the present writing (November 9) the fight for non-sale of game in California appears to have been lost. However, the count of votes is still going on, and the final returns may switch the results back again. Whatever the outcome, it has been an up-hill contest, and great credit is due the officers of the California Associated Societies, particularly its President, Dr. W. F. Badè, and its Secretary, Dr. W. P. Taylor. The latter, with a corps of helpers, distributed printed matter to the voters of the state as follows: 20,000 Western Wild

Life Calls, containing full information on the non-sale of game; 95,000 cards, urging a vote "yes" and containing skeleton argument; 49,000 circular "letters to voters"; 8,200 multigraphed, personally signed letters. In addition hundreds of letters were mailed as a part of regular correspondence. Three separate batches of pertinent paragraphs were sent to the 825 newspapers of the state. Many special articles were prepared, and published by various magazines and newspapers in the state. Street car advertising was resorted to in several of the large cities. More than one hundred lectures were given under the auspices of the campaign, latterly accompanied by moving pictures. All in all, it is believed that fully one million of the citizens of California were acquainted with the reasons for the no-sale law and urged to vote favorably upon it.

#### PUBLICATIONS REVIEWED

GAME PROTECTION AND PROPAGATION IN AMERICA. A HANDBOOK OF PRACTICAL INFORMATION FOR OFFICIALS AND OTHERS INTERESTED IN THE CAUSE OF CONSERVATION OF WILD-LIFE. By HENRY CHASE (J. B. Lippincott Company, Philadelphia and London, September, 1913, v, pp. 1-238).

If courses in game protection and conservation should be given in our universities and colleges, and there is no question but that they should be a part of the curriculum, it would be difficult to find a suitable textbook. The best thing we have yet seen which would be available for such use is a recent book by Henry Chase entitled: "Game Protection and Propagation in America." Mr. Chase, with his long experience as a game warden, is well qualified to write "a handbook of practical information for officials and others interested in the cause of conservation of wild-life."

One of the strongest chapters in the book is the first one, entitled "Educating the Public—A foreword." In this chapter Mr. Chase points out that the most pressing need of the hour to forward the great movement of conservation of wild-life is *education*. He states further: "The Federal authorities are always happy, and it is their duty, to co-operate with those of the states in their work for better game protection. So it is manifest what should be done. Connected with the game department in each State there should be a bureau of education and publicity, presided over by an expert. With these bureaus co-operating with each other and with the national one, a campaign of education along correct lines can be conducted which will accomplish more and better results in a few years than has been done altogether in the past. This plan would be no experiment with which to waste state funds either. It has now had

the benefit of years of trial; it has been systematized; it has a well-defined and definite course to pursue, and has not been found wanting in efficacy. Unquestionably, nothing can be of more value to the cause of game protection at this time than a systematic campaign of education conducted officially by the game department in every state in the Union, and an extension in the work on that line now being performed by the federal bureau. It is earnestly to be hoped that such a campaign may be started forward."

Certainly Mr. Chase has gotten at the root of the matter, for when the value of birds and the need of their protection and preservation is really appreciated, protective laws will be comparatively unimportant.

The following chapter headings give a good idea of the scope of the book: Why Protect the Game?; Relations of Birds and Mammals to the Natural Resources; Present Meaning of the Term "Game Protection"; Brief Survey of Game Legislation in America; "Sane, Simple and Scientific Game Laws"; Federal Protection of Migratory Birds; Protection of Birds by International Treaties; State Laws and Their Enforcement; Field Work of Game Officers; The Right of Private Property in Game; Re-stocking Game Covers; Propagation of Game Fish; Feeding Game During Severe Winters; and, Hunting Accidents. An appendix furnishes a typical constitution and by-laws for game clubs.

To anyone seeking knowledge of game protection and propagation in America no better source can be found than this excellent treatise by the well known author of "Powers, Duties and Work of Game Wardens," "Modern Doctrine of Game Protection," and "Private Preserves in America." —H. C. BRYANT.

THE RED-WINGED BLACKBIRD: A STUDY IN THE ECOLOGY OF A CAT-TAIL MARSH. By ARTHUR A. ALLEN. Zoological Laboratory, Cornell University. Reprinted from the Abstract of the Proceedings of the Linnaean Society of New York. Nos. 24-25, 1911-1913, pp. 43-128, pls. 1-22. Issued April 15, 1914.

The paper here reviewed is one of that very desirable but as yet relatively rare type of contribution setting forth the biology of a single species. It is also a very good example of that type and introduces several novel features which students working along similar lines might adopt to advantage.

The observations upon which the present paper are based were made at Renwick

Marsh at the head of Cayuga Lake, near Cornell University, Ithaca, New York, and cover a period of several years. Mr. Allen begins the paper with a description of the topographic features of the marsh, its climatic conditions and zonal position. The floras and vertebrate faunas of the several associations are described in detail. The following seven associations are distinguished: open-water, shore-line, cat-tail, sedge, grass, alder-willow, and maple-elm. Some attention is devoted to the succession of associations and the factors which control such succession. A graphic representation following a method commonly used by paleontologists to portray the persistence of faunas shows the associational distribution of the commoner birds and aids in making clear, this, to some, rather intangible segregation of species.

After thus describing its environment, the life history and ecology of the Red-wing are taken up, the following topics being considered: Spring migration, mating and song, nesting, the young, fall migration, enemies, molt and plumage, food and food supply, correlation between changes in food and changes in structure of stomach, and correlation of changes occurring in the reproductive organs.

Seven categories of individuals during the spring migration are distinguished. These, with their typical dates of arrival at Renwick Marsh, are as follows: "Vagrants", Feb. 25-Mar. 4; Migrant adult males, Mar. 13-Apr. 21; Resident adult males, Mar. 25-Apr. 10; Migrant adult females and immature males, Mar. 29-Apr. 24; Resident adult females, Apr. 10-May 1; Resident immature males, May 6-June 1; Resident immature females, May 10-June 11.

Mr. Allen solves the "mysterious disappearance" of the Red-wings for a period after the breeding season by finding that the period in question is that of active molt and that the birds then restrict themselves to the thick growths of tules where they are secure from their enemies. A correlation between the nature of the food and the structure of the stomach was discovered. The musculature of that organ becomes heavier when the birds are feeding upon seeds than when they are subsisting upon insects.

Perhaps the most novel thing in the whole paper is Plate XXI which shows the relative development of the testes and ovaries in resident and migrant birds. A gradual increase in size is demonstrated in both residents and migrants; but corresponding stages appear a month later in the latter

category, so that of two birds collected on any one day in March or April in the same locality, the organs of the resident will be much more fully developed than in the migrant.

Altogether the paper is an excellent example of painstaking, intensive work, replete with observations and relatively free from speculation. Mr. Allen has furnished a standard that future students in the same field may follow to advantage. It will also serve well as a source of information for teachers of ornithology.—TRACY I. STORER.

THE BIRDS | OF | EL PASO COUNTY | COLORADO | By CHARLES E. H. AIKEN | and | EDWARD R. WARREN | Director of the Museum, Colorado College | Parts I and II.—Colorado College Publication; general series, nos. 74, 75, 76; science series vol. XII, no. 13, I, pp. 4-455-496, 2 maps, 15 half-tone figs. on 8 pls.; II, pp. 2-497-603+9 (unpaged index), pls. IX-XXIV which contain half-tone figs. 16-45. Dates on covers: I, May, 1914; II, June-September, 1914. Our copy, both parts, received July 20, 1914.

We have here the most comprehensive county bird list that has come to our attention for a long time. It is far more than a faunal list, nearly every species being accorded more or less biographical treatment, besides full distributional consideration, and occasional critical or systematic notice.

The association of these two authors is a happy one. Mr. Aiken, truly a pioneer, came to Colorado Springs in 1871, and his large collections and notes covering a long period of years contribute to the completeness of the report. The junior author, Mr. Warren, has been doing bird work in El Paso County steadily for the past dozen years. To him has evidently fallen most of the work of compiling the text and seeing to the details of publication.

The paper includes, besides the main annotated list, paragraphs or chapters on topography, life zones, climate, history, bibliography, and analysis of the avifauna. Two maps acquaint the reader with the lay of the land; while forty-five half-tone cuts of birds, nests, and eggs add decidedly to the attractiveness of the paper.

We have found in this contribution several points of particular interest, to only two of which, however, can space here be spared for reference. Exception is taken by Aiken and Warren to the ruling of the A. O. U. Committee regarding the occurrence in Colorado of all three forms of *Astragalinus psaltria*, namely, *psaltria*, *arizonae*, and *mexicanus*. Oberholser's view, con-

curred in by the Committee, was that these are mere age differences. The authors of the present paper think that "there is one point that has been overlooked, with regard to the occurrence of these birds in El Paso County at least, and that is that *psaltria* alone is the breeding form, so far as at present known, the dark forms not making their appearance until later, *arizonae* coming in July, and *mexicanus* the very last of July and first of August. . . ." No dark-colored birds have been discovered breeding in the County. The differences involved consist only in the relative degree of extension of black on the dorsal surface.

In the mind of the reviewer it is contrary to distributional precedent for three *subspecies* to occur in a single place during the summer season in the way these goldfinches seem to do. It seems more likely that age *does* have something to do with the observed differences, and that these are heightened by the effects of wear so that the monthly succession described becomes explainable. Examination of skins from California, from which state the same three forms used to be recorded, tends to support this conclusion. [Incidentally, the reviewer fails to find good grounds for separating the Pacific Coast bird, "*hesperophilus*", from *psaltria*!]

Aiken and Warren devote nearly six pages to an account of the House Finch (*Carpodacus mexicanus frontalis*). Among the various features of this bird treated, the matters of systematic position and molts deserve comment. It is stated that comparison of specimens from El Paso County with others from California, Arizona and New Mexico, shows the local bird to possess various characters of color and dimensions which seem to warrant separate recognition. The bird of Colorado east of the mountains would retain the name *frontalis*, Say's description having been based upon a bird from the Arkansas Valley, while the more western and southern form would be called *Carpodacus mexicanus obscurus* McCall. The known wide variation in House Finches of the Pacific Slope suggests caution in considering these views, however.

As to molts, the authors' experience shows that young male House Finches acquire the red plumage, practically indistinguishable from the adults, at the first fall change. But one individual exception to this rule, as far as their material has shown, is cited. It may here be remarked that although this condition of affairs has been clearly stated in print before, Chapman, in *Bird-Lore* (vol. xvi, March-April, 1914, page 107), states

that the plumage changes in the House Finch "appear to be the same as those of the Purple Finch". This error is perhaps natural, in view of the close general similarity between the Linnets and Purple Finches. But the case teaches that extreme caution should be exercised in handling the often complicated problem of molts and plumages. Considerable irregularity is sometimes displayed within the same genus.

Returning to the paper under review, enough has been said to indicate its general features and value. The authors are to be highly commended on furnishing their locality with so useful a compendium of ornithological knowledge. Local interest should be largely increased as a result.—J. GRINNELL.

## MINUTES OF COOPER CLUB MEETINGS

### NORTHERN DIVISION

AUGUST.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held in Room 101, East Hall, University of California, Berkeley, August 20, 1914, at 8 P. M. President Bryant was in the chair with the following members present: Mesdames Allen and Grinnell, Miss Swezy, and Messrs. Bryant, Camp, Carriger, Dawson, Evermann, Grinnell, Moran, Storer, Trenor and Wheeler. Several visitors were present.

The program of the evening was first presented. Mr. William Leon Dawson spoke on "The Shorebirds of 1914" and illustrated his remarks with a series of excellent lantern slides prepared from photographs made during the present season at Los Baños, Santa Barbara and elsewhere in California.

The business of the meeting was then taken up. The minutes of the Northern Division for July were read and approved, followed by the reading of the Southern Division minutes for June and July. The following were elected to membership: Dr. George Bird Grinnell, Miss Minnette MacKay, Mr. Enos A. Mills, and Mrs. Alfred Worcester. The following were proposed for membership: Miss Hazel King, 1898 Broadway, San Francisco, by Dr. William F. Bade; Mrs. Amy M. Bryant, 2533 Hill Court, Berkeley, by H. C. Bryant; Mr. Lee R. Dice, Prescott, Washington, Miss Amy E. Gunn, Mill Valley, Miss Frieda Lueddemann, Box 105, Los Gatos, Miss Mary S. Storer, 467 San Pablo Avenue, Fresno, all proposed by Tracy I. Storer; Miss Dorothy Conger, 2425 Oregon street, Berkeley, by Miss Susan B. Culver. The ten names pro-

posed at the June meeting of the Southern Division and the nineteen proposed at the July meeting of the same Division, were also read.

Mr. Charles Camp presented the report of the committee of three appointed to examine the constitution of the Pacific Division of the American Association for the Advancement of Science. The committee reported favorably upon the constitution and recommended that the Cooper Ornithological Club accept the invitation of the Pacific Division to affiliate. The report was adopted. Adjourned.—TRACY I. STORER, *Secretary*.

#### SOUTHERN DIVISION

AUGUST.—The August meeting of the Southern Division was held at the Museum of History, Science, and Art, Thursday evening, August 27. President Law was in the chair and the following members present: Miss Etta V. Little, and Messrs. Chambers, Colburn, Daggett, Edwards, Howell, Jewett, Rich, Swarth, and Wyman. One visitor was present, Mrs. Lincoln. The minutes of the July meeting were read and approved, followed by the Northern Division minutes for August.

New members were elected as follows: C. D. Hegner, Los Angeles; J. C. Sheaffer, Los Angeles; Mrs. E. G. Butler Berryville, Virginia; W. E. Boeing, Seattle, Washington; R. W. Williams, Takoma Park, Maryland; R. Bruce Horsfall, Princeton, New Jersey; Mrs. M. A. Commons Crystal Bay, Minnesota; F. Adam, Tropico; D. I. Simmons, Los Angeles; Mrs. Herbert Brown, Tucson, Arizona; Dr. R. L. Walker, Carnegie, Pennsylvania; George S. Shiras 3rd, Washington, D. C.; C. F. Hodge, Eugene, Oregon; Dr. W. M. Tyler, Lexington, Massachusetts; John P. Young, Youngstown, Ohio; E. B. Hunt, Washington, D. C.; H. G. Smith, Denver, Colorado; F. Barker, Parkers Prairie, Minnesota; Mrs. Harriet B. Thornber, Tucson, Arizona. A motion was also passed admitting to membership those individuals elected at the last Northern Division meeting.

New names proposed were: Melvin R. Gay, Redlands, presented by Mrs. Gertrude H. Husher; E. H. Rogers, Berkeley, by D. R. Dickey; E. V. Sands, Tombstone, Arizona, by F. C. Willard; J. G. Johnson, Berkeley, by C. A. Kofoid; H. R. Mills, Tampa, Florida, and L. B. Martin, Clearwater, Florida, by O. E. Baynard; F. C. Test, Chicago, by L. A. Test; H. L. Stoddard, Chicago, by

W. Lee Chambers; E. H. Williams, Los Angeles, by Mrs. H. W. Myers.

Mr. W. Lee Chambers was appointed a committee of one to confer with Mr. W. L. Finley in regard to an illustrated lecture to be delivered under the auspices of the Club. Mr. Howell spoke on his recent collecting trip to Owens Valley and the eastern slope of the Sierras. Adjourned.—H. S. SWARTH, *Secretary*.

SEPTEMBER.—The monthly meeting of the Southern Division was held at the residence of Dr. L. H. Miller, Sunday afternoon, September 27. The following members and visitors were present: Dr. and Mrs. F. T. Bicknell, W. L. Chambers, A. Cookman, F. S. Daggett, Dr. and Mrs. E. A. Dial, H. A. Edwards, Dr. and Mrs. C. O. Esterly, Mrs. Minerva J. Fargo, Dr. A. K. Fisher, Mrs. Frances M. Harmon, C. D. Hegner, J. E. Law, Dr. and Mrs. L. H. Miller, Mrs. H. W. Myers, W. M. Pierce, Mrs. J. E. Pleasants, P. L. Radir, Dr. C. G. Stivers, Mr. Smith, Mr. and Mrs. H. S. Swarth, L. W. Welch, Dr. E. H. Williams, Mrs. Williams, Miss Williams, G. Willett, A. van Rossem, O. J. Zahn.

The minutes of the August meeting were read and approved. New members were elected as follows: Melvin R. Gay, Redlands; E. H. Rogers, Berkeley; E. V. Sands, Tombstone, Arizona; John C. Johnson, Berkeley; Dr. Herbert R. Mills, Tampa, Florida; L. B. Martin, Clearwater, Florida; F. C. Test, Chicago, Illinois; H. L. Stoddard, Chicago, Illinois; Dr. E. H. Williams, Los Angeles. New names proposed were; E. F. Averill, Pendleton, Oregon, presented by S. G. Jewett; W. H. Alkire, Hollywood, presented by A. E. Colburn; Ida G. Jenkins, Roxbury, Massachusetts, presented by E. E. Caduc.

Dr. A. K. Fisher spoke briefly on some of the phases of the work of exterminating injurious rodents in which the Biological Survey is engaged, telling of various unexpected complications arising through the resulting disturbance of the balance of nature. His talk concluded with comments on the California meeting of the American Ornithologists' Union next year, giving some welcome suggestions whereby such a meeting can be made most successful.

That the members of the Division anticipate with pleasure having at least one meeting during the year on Dr. Miller's broad, shady veranda, was evidenced by the number in attendance on this occasion. It is clearly one of the most enjoyable features of the Club's yearly program. Adjourned.—H. S. SWARTH, *Secretary*.

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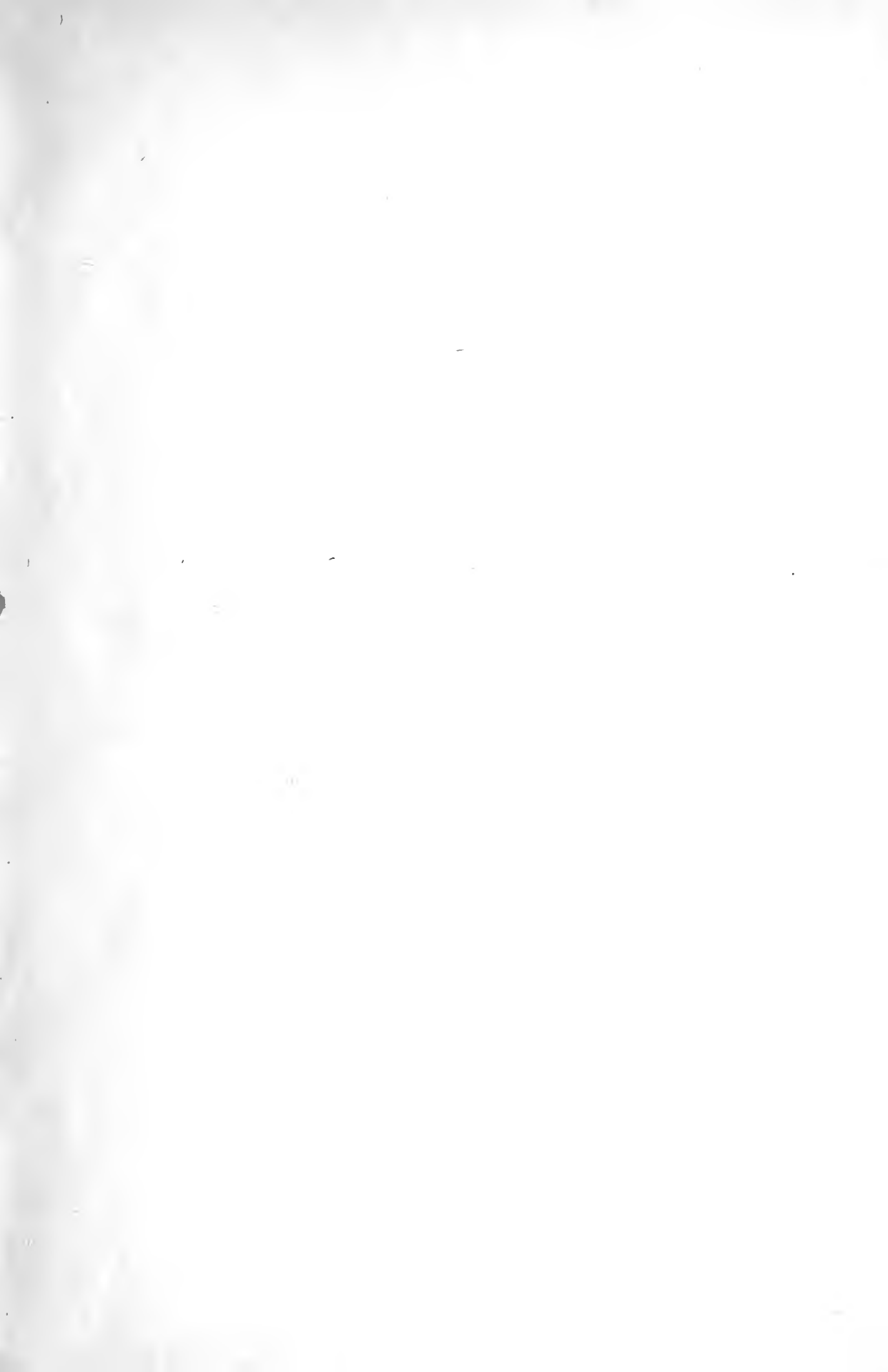
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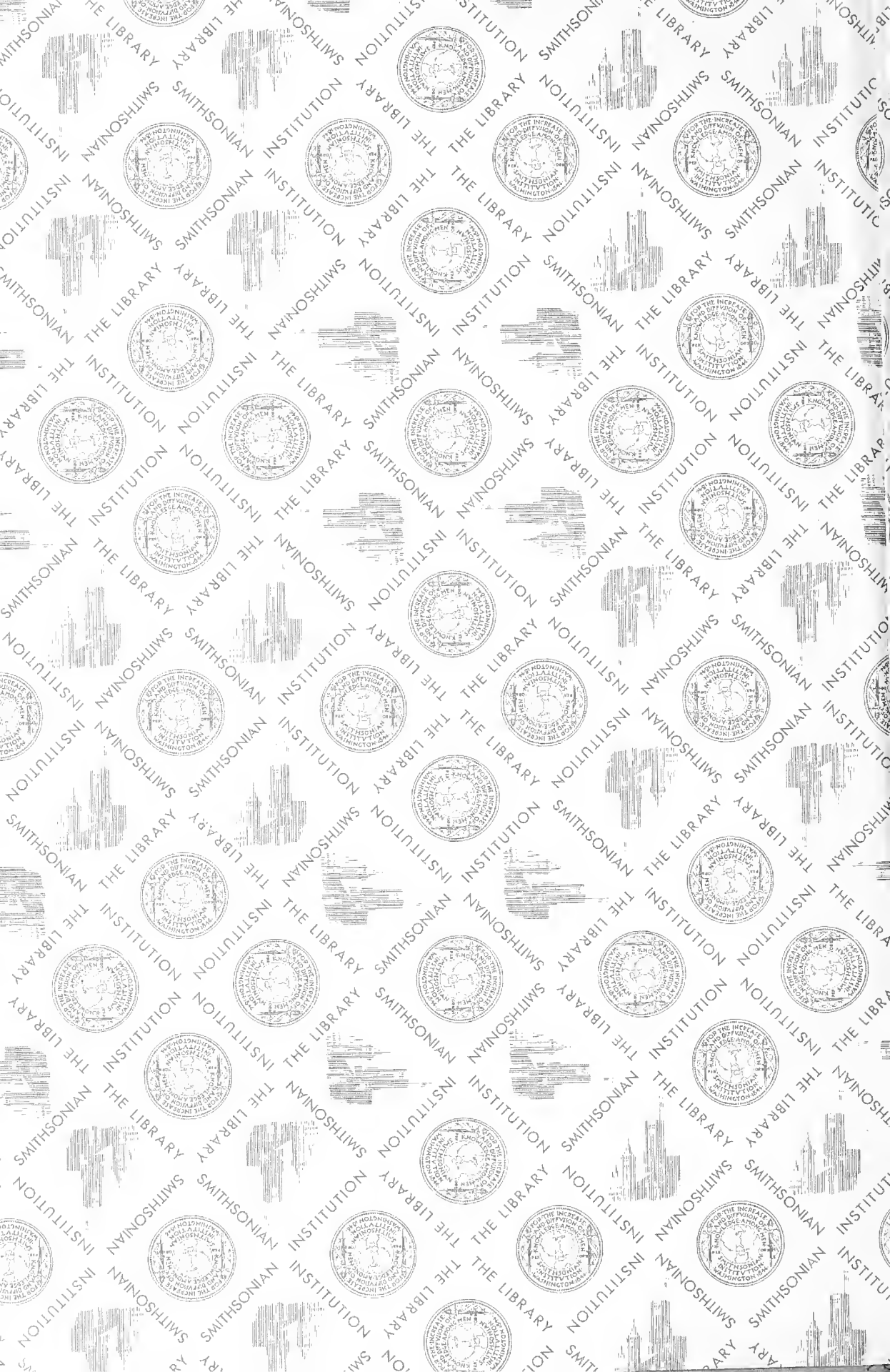
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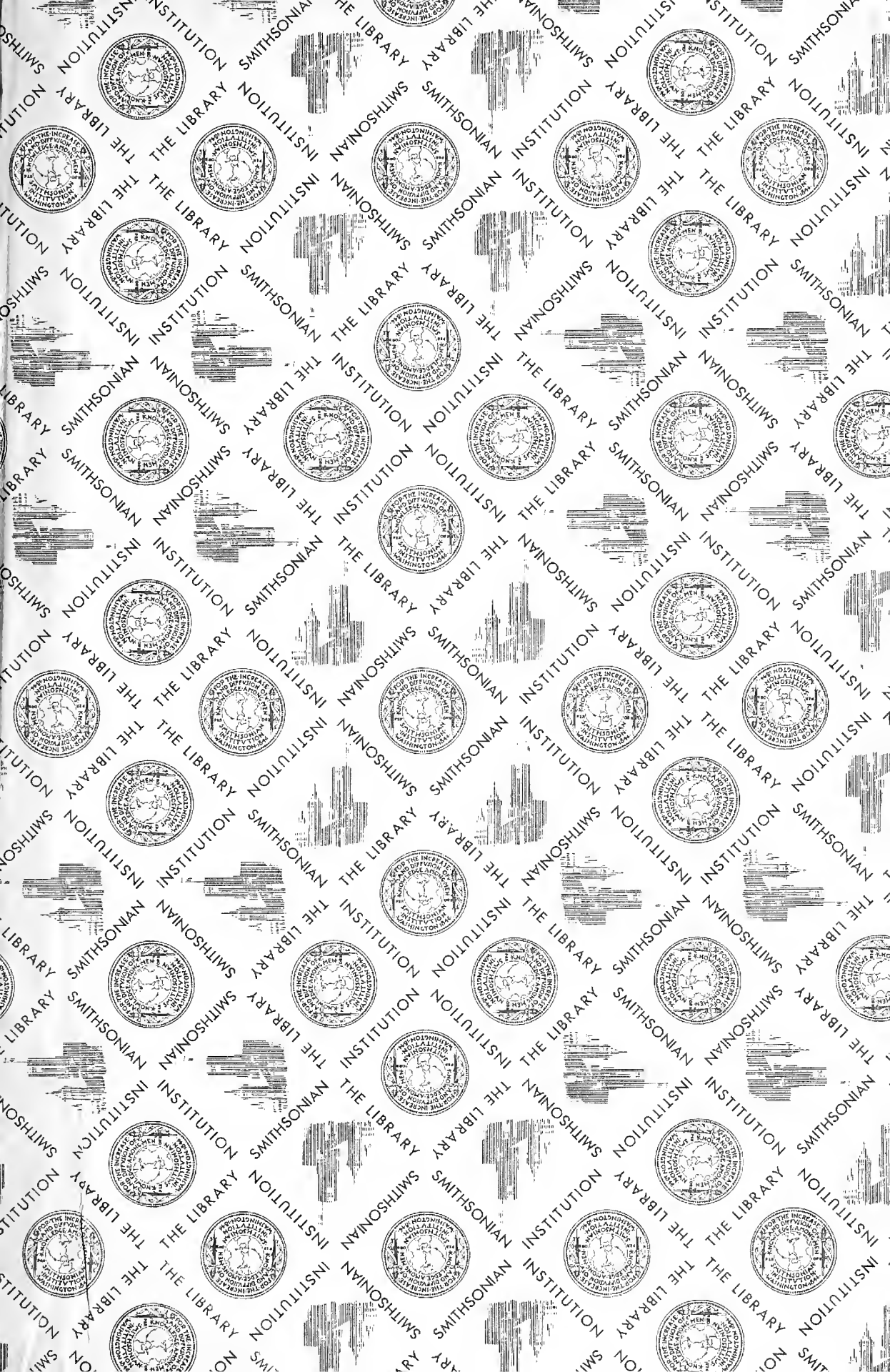
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